PUBLICATIONS OF THE JOINT EXPEDITION OF THE BRITISH MUSEUM AND OF THE MUSEUM OF THE UNIVERSITY OF PENNSYLVANIA TO MESOPOTAMIA

UR EXCAVATIONS

VOLUME I

AL-'UBAID

BY

H. R. HALL

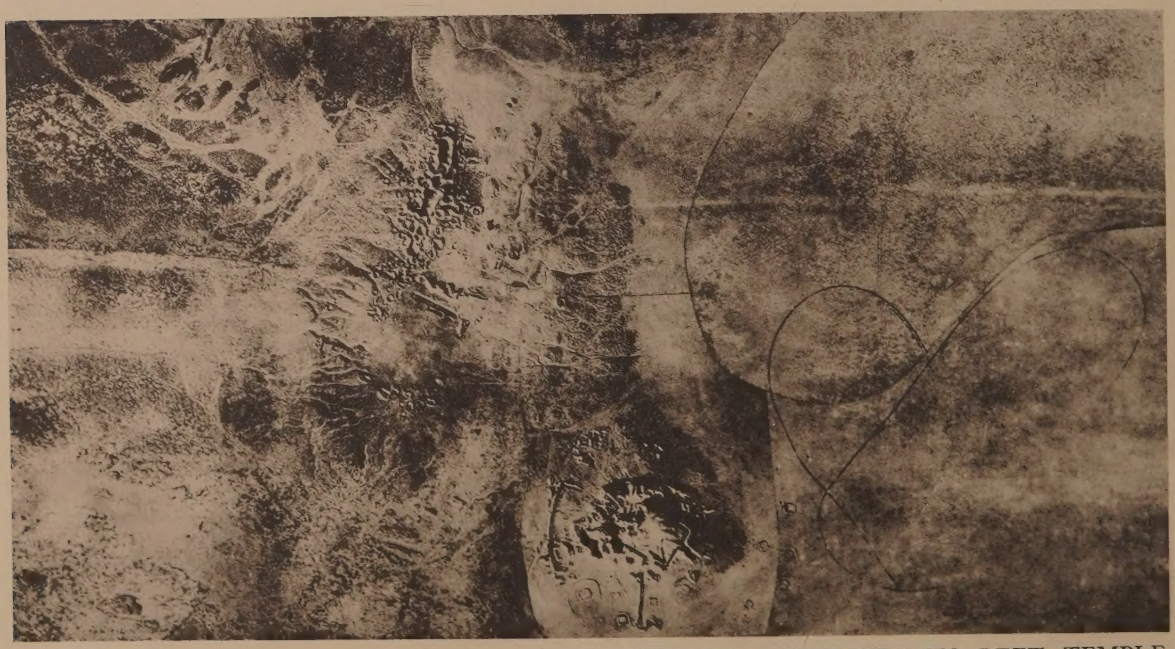
AND

C. L. WOOLLEY

PUBLISHED FOR
THE TRUSTEES OF THE TWO MUSEUMS BY THE
OXFORD UNIVERSITY PRESS
1927

UR EXCAVATIONS
AL-'UBAID

1. AIR VIEW OF THE TEMPLE-MOUND, AL-'UBAID FROM THE N E.



2. AIR VIEW OF AL-'UBAID AND ITS NEIGHBOURHOOD: CEMETERY TO LEFT, TEMPLE IN MIDDLE FOREGROUND

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PUBLICATIONS OF THE JOINT EXPEDITION OF THE BRITISH MUSEUM AND OF THE MUSEUM OF THE UNIVERSITY OF PENNSYLVANIA TO MESOPOTAMIA

UR EXCAVATIONS

VOLUME I

AL-'UBAID

A REPORT

ON THE WORK CARRIED OUT AT AL-'UBAID FOR THE BRITISH MUSEUM IN 1919 AND FOR THE JOINT EXPEDITION IN 1922–3

By

H. R. HALL, M.B.E., D.LITT., F.B.A., Keeper of Egyptian & Assyrian Antiquities in the British Museum, and C. LEONARD WOOLLEY, M.A., Director of the Joint Expedition. With Chapters by C. J. GADD, M.A., Assistant in the Department of Egyptian and Assyrian Antiquities, and Prof. SIR ARTHUR KEITH, M.D., F.R.S., Conservator of the Museum of the Royal College of Surgeons

Palestine Institute
of
Pacific School of Religion

PUBLISHED FOR
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1927

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PREFACE

IN 1922 an agreement was made between the Trustees of the British Museum and the Board of Managers of the Museum of the University of Pennsylvania for joint archaeological exploration in Mesopotamia; and since November of that year there has been a series of annual expeditions at work in that country, all under the leadership of Mr. C. L. Woolley, though otherwise with varying personnel. The excavations were conducted under the authority and with the active goodwill of the Government of 'Iraq, represented for this purpose by Miss Gertrude Bell, whose recent death is an irreparable loss to archaeological studies in the East, as well as a personal sorrow to all those who had the honour of her acquaintance.

The main scene of the operations of the Joint Expedition has been the mounds known as Tell al-Muqayyar, first excavated by J. E. Taylor for the British Museum in 1854 and identified by Rawlinson as the site of the city known to Old Testament history as Ur of the Chaldees. Work had already been renewed here on behalf of the British Museum by R. C. Thompson in 1918, and by H. R. Hall in 1919. It is curious that the first excavations of the British Museum on this site should have taken place during the Crimean War, and the next during the Great War of 1914–18. In each case war gave an opportunity to archaeology. Ur, however, was not the only site touched. In the course of Hall's campaign in 1919 his attention had been attracted to the small mound of Tell el-Obeid or al-'Ubaid, about four miles away, and in a partial excavation of it he had made some most remarkable discoveries, which are described in the present volume. The complete clearance of the site was an obvious obligation, and this was carried out by Woolley, with

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equally remarkable results, in the course of his campaign of 1923–4. A special contribution for the purpose was made by Mr. A. L. Reckitt, who has throughout been a generous friend of the expedition, and who took upon himself the cost of the British Museum's share of this particular work.

It will be seen that the excavation of Tell al-'Ubaid was begun by the British Museum alone, but was completed by the Joint Expedition of the two Museums. It is obvious that the publication of the results could not be divided, and it therefore appears, with the assent of Mr. G. B. Gordon, the Director of the University Museum, as the first of the series of volumes, issued in common by the two institutions, in which it is proposed to publish the work of the Joint Expedition. It will be possible soon to commence the publication of the Temenos or sacred enclosure of Ur, since the clearance of the site is approaching completion. Simultaneously it is proposed to issue a series of publications of the texts of the tablets and inscriptions found in the course of the excavations; and the first of these volumes is far advanced in preparation.[1]

Tell al-'Ubaid, however, is a separate and complete unit of discovery, and in view alike of the age and remarkable interest of the remains there brought to light it forms a suitable prelude to the work of the two Museums.

January, 1927. FREDERIC G. KENYON.

[1] Reports of the work done for the British Museum by Thompson and Hall not only at Ur and al-'Ubaid, but also at Abu Shahrain (Eridu), appeared in *Archaeologia*, vol. lxx, 1920, and in the *Proceedings of the Society of Antiquaries*, Dec. 1919; the *Journal of Egyptian Archaeology*, 1922, p. 241 ff., and 1923, p. 177 ff.; the *Central Asian Society's Journal*, 1922, p. 119 ff.; the centenary volume of the *Journal of the Royal Asiatic Society*, 1924, p. 123 ff.; and in *Man*, Jan. 1925. Reports of the work of the Joint Expedition have been printed in the *Antiquaries' Journal* (London), Oct. 1923, Oct. 1924, Jan. and Oct. 1925, and Oct. 1926, and in the *Museum Journal* (Philadelphia), March and Dec. 1923, March, June, and Sept. 1924, March and Dec. 1925, Sept. and Dec. 1926.

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DESCRIPTION OF THE PLATES

I. *Frontispiece.* 1. Air-view of the temple mound, from the north-east. On the left is seen the south-east stone ramp-stairway (pp. 14, 25, &c.; Pl. XXII) with in front of it the court in which Dr. Hall's discoveries were made in 1919. On the right is the projecting drain (p. 13; Pl. XXV, 1). The south-west stone stairway (pp. 13, 71; Pl. XXV, 2) is hidden on the further side of the mound. 2. Air-view of al-'Ubaid and its neighbourhood: cemetery (chs. viii, ix; Pl. XLII) to left, temple in middle and foreground. *By courtesy of the R.A.F. Crown Copyright Reserved.*

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XIV. Primitive surface-finds of stone, 1919; flakes and cores, hammer-stones, arrow-heads, inlay-plaques, &c. (see pp. 8, 50 ff., 152).

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PART I

THE TEMPLE

BY

H. R. HALL, C. L. WOOLLEY,
AND C. J. GADD

CORRIGENDA

PAGE 16, line 10 from bottom:

For the steatite bull-rhyton from the Tomb of the Double Axes at Knossos

Read the steatite bull-rhyton from the Little Palace at Knossos

PAGE 62, Note 2 should have been included in square brackets and signed 'C.J.G.'

PAGE 152, line 19 from top:

For Ch. IX *read* Ch. X, page 217

Hall: *al 'Ubaid*

CHAPTER I

INTRODUCTORY

By H. R. HALL

IN the year 1839–40 the hostilities that threatened to break out between Persia and Turkey owing to frontier disputes were avoided by the mediation of the Governments of Great Britain and Russia, with the result that commissioners nominated by the four Powers assembled at Erzerūm and, after long delays, appointed a travelling Commission to deliminate the disputed boundary. Colonel Williams, R.A. (afterwards Sir W. F. Williams, the famous defender of Kars during the Crimean War), was the British representative, and to his staff a geologist was appointed, Mr. (later Sir) William Kennett Loftus, F.G.S. The Commission started out on its work in the year 1849, proceeding southwards by way of the Tigris and Mosul to Baghdad, and thence *viâ* Hillah, Dīwānīyah, and the lower Euphrates to Baṣrah, on its journey to the southern end of the boundary in Arabistan. During the journey, Mr. Loftus, who was keenly interested in the ancient remains along the route, took careful notes of the chief ruined sites, such as Nineveh, Babylon, Nuffar (Nippur), Warka (Erech), and Tell al-Muqayyar (Ur), and on arrival at Muhammarah he obtained leave from Colonel Williams to return to Warka and dig there on a small scale. The results of this, the first archaeological excavation in Southern Babylonia, were to be sent to the British Museum, and they are there now, the kernel of our early Babylonian collections.

On his return to England, at the close of the Frontier Commission work in 1852, Mr. Loftus found that sufficient interest was taken in Assyrian discoveries to allow of the constitution of an Assyrian Excavation Fund (inspired chiefly by Dr. Samuel Birch), under whose auspices he was sent out at the end of the year 1853 to continue his work at Warka, which he did, extending it further to Senkereh or Sinkarah (Larsa). At the same time Mr. J. E. Taylor, H.M.'s Consul at Baṣrah, had begun to carry out excavations at Tell al-Muqayyar, which Loftus had visited in 1850, and of which he had given a favourable report. The Trustees of the British Museum, moved thereto by the recommendations of Sir Henry Rawlinson, determined to co-operate in this work. Mr. Taylor's work had been carried out during the winter of 1853–4, and his report of it was published by the British Museum authorities in the *Journal of the Royal Asiatic Society*, xv (1855), pp. 260 ff. (read 8th July, 1854). A year later, now under the direct auspices of the Museum, he visited the mounds of Abu Shahrain (Eridu), fourteen miles out in the desert from Muqayyar, and Tell al-Laḥm, nearer in to the cultivated valley, and his report on this work was read to the Royal Asiatic Society on 8th May, 1855, and published in the same volume of the *Journal*, pp. 404 ff. (Art. vii). Both articles were illustrated by the quaint woodcuts of the time, in which first the draughtsman and then the engraver combined successively to deform the (originally probably rather poor) sketches or notes of the actual observer into something that can have borne but a faint resemblance to

the original. One notices this in Taylor's sketch of the *ziggurrat*[1] of Ur on p. 262, which is of the severely diagrammatic kind, as befits a learned publication.[2] Still, poor though the sketches may be, Consul Taylor's work both at Muqayyar and at Shahrain was admirable for a man without archaeological experience, and the perusal of his reports shows what great care he took over it. Those with personal experience of both sites can testify to the (according to the standards of those days) accurate impression he gives of them in writing, more especially of Abu Shahrain, where his finds were really more important than at Muqayyar, though possibly he hardly realized this. Certainly their importance was not realized in London, nor is it likely that it would be realized at that time. All attention was focussed on Nineveh and mighty Assyrian bulls and bas-reliefs of kings and lion-hunts and eagle-headed divinities. The work of Layard held the field; there were few to realize the importance of the discovery of the most ancient culture of Mesopotamia, to understand that Taylor had already reached the origins of Babylonian civilization at Shahrain. Flint implements from Babylonia attracted no attention in competition with winged bulls from Assyria. They were only beginning to attract attention even when found in England. No man realized their significance in the Middle East, or how important was the site of Eridu. The finds too at Muqayyar were not very exciting. Accordingly the work on the two sites was closed down, and as the Assyrian Excavation Fund very soon ceased work also, and Sir Henry Rawlinson did no further work in Babylonia after his short excavation of Birs Nimrūd (Borsippa) in 1854, archaeological exploration in Babylonia stopped for a generation.

It was not till 1877 that excavation was resumed in Babylonia, by another consul at Baṣrah, this time the representative of France, who, however, began his work at Telloh (Lagash) independently of his government, although as soon as the importance of his results became apparent, France intervened actively to help him, and on one occasion lent him a warship in which to bring his trophies home. De Sarzec's labours, which extended over many years, made the Louvre the chief European treasure-house of early Babylonian (Sumerian) art and history, and to its inspiration was due the inception of the Persian work of Dieulafoy and of de Morgan and other excavations of the *Délégation en Perse*.

Rassam's contemporary excavations for the British Museum at Babylon, Birs, Telloh, and Abu Ḥabbah (Sippar), and those of Dr. (now Sir) E. A. Wallis Budge for the Museum at Dair, though productive of cuneiform tablets and later objects of interest, did not result in the discovery of many Sumerian antiquities. It was not till the end of the Great War was in sight that, early in 1918, the Trustees of the British Museum decided that the time was propitious for the reopening of British excavations in Mesopotamia, and

[1] [No attempt has been made in this book to adhere strictly to a perfectly correct orthography of this word, which is, in fact, somewhat uncertain. It is possible that *ziggurratu* is the true form, but in the texts z is found at the beginning more often than *s*. A statement of the evidence at present available may be read in the *Inschriften der altassyrischen Könige*, p. 148, note 4. C. J. G.]

[2] For the florid and romantic style of the period one may turn to the picture of the same ziggurrat opposite p. 129 of Loftus's *Travels and Researches in Chaldea and Susiana*, published three years later.

that this time the southern sites should be attacked, since the district of Mosul in which Nineveh lies was not yet conquered, and so that the British Museum should possess a Sumerian collection more worthy of its fame.

Accordingly, in the early part of 1918 Mr. R. Campbell Thompson, formerly an assistant in the Department of Egyptian and Assyrian Antiquities, who had in former years excavated with the late Prof. L. W. King at Kuyûnjik (Nineveh) for the Museum, and was his colleague in the expedition to Bisitun to recopy the famous rock-inscription of Darius, was commissioned by the Trustees of the British Museum to take up again the work at Tell al-Muqayyar and Abu Shahrain, which had been begun by British explorers so long ago as the time of the Crimean War, and since then had been left untouched. Mr. Thompson, who happened then to be serving in Mesopotamia as a captain in the Intelligence branch of the army, worked under the political authorities. He made only a preliminary examination of Muqayyar (Ur), remaining there one week only, and devoted his attention to Shahrain (Eridu). The results of his work have been published *in extenso* in *Archaeologia*, lxx (1920). His discoveries belonged chiefly to the prehistoric and early Sumerian periods, and the pits and *sondages* made by him in order to obtain a correct idea of the stratification of the mound of Shahrain have yielded most valuable contributions to our knowledge of early Babylonian archaeology. Next year I took his place, sent out, being an officer of the Intelligence Department, under the auspices of the War Office, but on arrival in Mesopotamia was attached to the Indian Political Service to work under the orders of the Chief Civil Commissioner. After reporting that Muqayyar was the easiest site in Mesopotamia to dig owing to its railway facilities (the Basrah-Baghdad line runs at the foot of the mounds, and there is a repair shop a mile and a half away at ' Ur Junction ' station, where the Nasiriyyah branch goes off), I personally spent nine weeks (15 Feb.–21 April, 1919) of the first excavation at Ur on a large scale since Taylor's work, and controlled three further weeks' work there from Shahrain and al-'Ubaid, revealing part of the temple of the Moon-god Nannar, dating from the time of the Third Dynasty of Ur. I had seventy Turkish prisoners assigned to me as diggers by the military authorities, some of whom were supposed to have had previous experience of archaeological excavation in Anatolia, while others came from Europe, and were quite used to the idea of digging for antiquities. I also took with me three Arab *raises* from Babylon, who had worked there in Prof. Koldewey's excavations.

While exploring the desert near Ur one Sunday at the beginning of April, I discovered a new prehistoric and early Sumerian site, of the same type as Shahrain, about four miles due west of Ur. This is a small *tell*, about 30 ft. high and 150 ft. long, called locally Tell al-'Ubaid [1] (' Mound of the little

[1] The conventional spelling *el-'Obeid*, used hitherto in the reports on the excavation, has in this book been abandoned for the more scientific transcription *al-'Ubaid*, according to the Royal Asiatic Society's system of transcribing Arabic. The name is well known as that of the chief town of Kordofan, in the Sūdān, and there is another place of the name in Mesopotamia, in the Batin, south-west of Basrah, mentioned by Philby, *Heart of Arabia*, vol. i, p. 248. The words *'Abd*, *'Ubaid*, denote a negro slave.

Slave '), which appears to be a corruption of Tell al-Ma'abad (' Mound of the Place of Worship '), by which name the desert Beduins know it. It is also called ' Tell al-'Abd ' (' Mound of the Slave '). The desert surface south and east of it is covered with the same ' prehistoric ' and early Sumerian antiquities that occur at Shahrain. Traces of early Arab occupation, to which the name of the tell may be due, existed in the numerous fragments of mediaeval glass that are found there. Besides the collection of surface antiquities, the excavation of the *tell* was undertaken, with, as a result, the discovery of the most important antiquities found by the expedition.

FIG. 1. Sketch-map of Southern Babylonia, showing the excavated sites.
(From *Proc. Soc. Ant.*, Dec. 1919, by permission of the Society of Antiquaries.)

The district in which these sites lie (Fig. 1) extends on the Arabian or south-western side of the Euphrates for some miles along the border of the desert inland from Naṣirīyyah, the nearest town on the Euphrates. To the south-east, towards Baṣrah, lies Sūq al-Shuyūkh, to the north-west, on the Euphrates towards Baghdad, are the towns of Durrāji, al-Khidhr, Samāwah, and Rumaithah. The whole desert-margin shows many *tells* or mounds of various dates from the Sumerian period to mediaeval Arab days. It is not difficult to diagnose the date of a mound from the finds on its surface and in its immediate neighbourhood. The presence of coins tells us that a place was inhabited in classical or later times, pieces of variegated glass bangles or other fragments of glass and mediaeval pottery betray Arab occupation, fragments of copper (nails and so forth) may be of any ancient date but are most probably early Bronze Age, flints and a peculiar type of painted pottery are

prehistoric. On a great series of mounds like al-Muqayyar all manner of surface-finds are visible, the earliest type of objects being the least prominent as the site has been worked over and over by successive rebuilding since time immemorial. When early remains are found on the surface, with no admixture of later objects, one can be sure that here is a more or less untouched early site. Such is the case with the main mounds of Abu Shahrain (though not those of the periphery), and such is the case with al-'Ubaid.

Tell al-Muqayyar, or al-Mukayyar (' the pitched ', from *ḳīr* (*qīr*), ' bitumen ', on account of the pitch found used as mortar in the ruins), has always attracted attention by reason of the great red mound of its ruined temple-tower, the *ziggurrat* of Ur, since the time of early travellers like Pietro della Valle, who saw it in the seventeenth century. So it was, like Sinkarah and Warka, an obvious place for excavations. Tell Abu Shahrain was not so obvious a place, and was unknown till Taylor first visited it. It is visible from the top of the Muqayyar tower, 80 ft. in height (a mountain for Southern Babylonia !), but seems to have attacted no attention, or was considered ineligible for visits on account of its distance—some fourteen miles away in the desert—and the possible danger from raiding Badu'. Its curiously rain-denuded *ziggurrat*, topped by a sort of horn of hard mud-brick, and about 70 ft. in height, is visible for miles. Tell al-Laḥm, examined by Taylor and Thompson, and the Tells Tuwaiyil, al-Judaidah, Abu Rasain, Murājib, al-Jaburah, and Tell ' A ', examined by Thompson in 1918, lie south-east of Muqayyar. Their few remains were published by Taylor and by Thompson.[1] Other small *tells* lie north-west and west of Muqayyar, such as Abu Sakhāri, a nameless Tell ' X ', and al-'Ubaid, all first visited and examined by me, al-Rajībah, visited by Woolley and Gadd, and others. Muqayyar lies six miles out from Naṣirīyyah and the Euphrates, approximately in lat. 31° N. long. 46° E.; Shahrain fourteen miles due south of it. It is very probable that originally the Euphrates took its course past Muqayyar, Mr. Woolley thinks perhaps west of it, as air photographs of the neighbourhood would seem to show the beds of some considerable ancient streams with islands in that direction. A depression between the two main groups of mounds marks the course of an ancient stream, probably a canal going eastward. Shahrain was connected with it by canals : from the peak of Shahrain's tower one can see in the desert to the northward clearly marked traces of canals, apparently radiating from the shallow lake in which on an island the city of Eridu stood. The depression making the position of the lake is so strongly marked that on approaching Shahrain one loses sight of its *ziggurrat* on the way until one tops the north-eastern escarpment of the bed of the ancient lake, when the mounds are suddenly seen in their entirety.

The mound of al-'Ubaid, al-Ma'abad or al-'Abd, for it appears to be known by all those names (Pls. I–III), lies, as I have said, about four miles due west of al-Muqayyar, the site of Ur of the Chaldees, and ten miles north of Shahrain. It at once attracted my attention by the exact similarity of the small objects of antiquity lying on the surface around it to those characteristic

[1] *Journ. R. Asiat. Soc.*, xv (1855), p. 412 ff.; *Archaeologia*, lxx (1920), p. 141.

of Abu Shahrain, which I had already visited, and where I intended to dig. Just as at Shahrain, the immediately surrounding desert was strewn with fragments of the painted pottery of the prehistoric age, black on greenish-drab, with long pottery cones, flakes and cores, arrowheads, nails and pegs of flint, chert rock-crystal, and obsidian; celts of jasper and nephrite, fragments of vases of obsidian, aragonite and calcite (the material we generally, if erroneously, call alabaster); inlay-plaques of the same material, of marble, bituminous limestone, and of hard red limestone; plugs and pegs of this limestone; copper nails, and other small objects and bits of objects dating, most of them, undoubtedly to the primitive period (3500 B. C. and earlier), others considerably later, and conceivably as late as the Third Dynasty of Ur (*c.* 2300 B. C.). Oddly enough, however, in view of the general identity of the surface-objects in both cases, I saw on the surface but few of the curious vitrified pottery sickles and curved convex-headed 'nails' that are so characteristic of Shahrain, though the long conical pottery headless ' cones ' were not uncommon, ranging, as at Shahrain, from large specimens of a length of several inches with a width at the broad end of an inch or so to small pencil-like objects an inch or sometimes less in length. Conversely, serrated flint flakes, rare at Shahrain, were common at al-'Ubaid.

Generally speaking, however, the character of the surface-finds is the same at both sites. The painted pottery of both is identical, the obsidian, flint, and crystal flakes and cores of both are identical. The primitive, and possibly prehistoric, origin of all these and of the majority of the surface-finds was evident to Thompson at Shahrain and to me there and at al-'Ubaid without a moment's further consideration. It is true that in Syria there exists mediaeval Arab pottery that has equally crude geometric designs in dark on a light ground, but the feel of this ware is totally different. And the flints and obsidian flakes were there to support an early dating. The pottery and the stone implements formed the vast bulk of the surface-finds and were obviously related in time. One could not correlate stone implements of this kind with the few odds and ends that, some obviously, others probably, dated to the historic period. Nor could one correlate this painted pottery with the historic period in any way. None had been found elsewhere in a datable historical connexion, and all we knew of even early Sumerian pottery was that it was a plain drab or yellow ware, without decoration. This was not contradicted by the new excavations. Thompson at Shahrain found only crude undecorated ware in deposits of the historical age, and at al-'Ubaid only drab ware, plain and incised, has been found with objects of the First Dynasty of Ur (*c.* 3100 B. C.), with the exception of a few fragments that were poorly decorated in red or black, a degenerate survival of the older painting (Pls. XII, 11; XV, 4). The fact had already been decided by Thompson's *sondages* at Shahrain, and has been entirely confirmed by Woolley's excavations. Thompson's contention, therefore, that the painted pottery is ' pre-Sumerian ' is correct in so far as by ' Sumerians ' we mean the Sumerians of the historic period, beginning with the First Dynasty of Ur. We have, however, in the opinion of Mr. Woolley and myself (which is not shared

by Mr. Thompson), no right to suppose that it is not Sumerian of the Sumerians of an earlier age, the primitive Sumerians of 3500 B. C. and earlier. Mr. Thompson thinks it may have belonged to quite a different race, in fact to Elamites who, according to him, conquered the country before the Sumerians reached it. There is a relationship between this pottery and that of Elam, of course. Precisely similar pottery has been found in Elam, at Bandar Bushir on the coast of the Gulf (Bushire), by M. Pézard.[1] The Bandar Bushir pottery, as was first noted by me,[2] is identical with that of Shahrain and al-'Ubaid, in ware as well as decoration. At Bandar Bushir there is no doubt as to the date of this ware, or of its association with the quartz, crystal, obsidian, jasper, chert, and flint implements (arrowheads, knife-flakes, saw-blades, nails, and pegs, &c.) which are multitudinous on all these sites. The same ware is characteristic of all three sites. It is usually hand-made, but shows signs of the incipient wheel—the ' slow-wheel ' method. It is usually very fiercely fired, hard, almost vitrified : greenish-drab in colour, with designs in bright black. On less highly fired fragments, pale drab in colour (which are less common) the designs often appear in reddish, rarely in quite red, pigment. The chemical reason for the difference is explained by Mr. Woolley in Ch. VIII. The more highly vitrified the pottery, the blacker the pigment. The decoration, usually in vivid black, rarely (on softer pottery) reddish, is generally geometric in character with occasional touches of naturalism in what seems to be the representation of plant-forms, and of ' stylism ' in that of the rarely pictured animal forms : ' naturalism ' and ' stylism ' often go together (see Pls. XV–XIX). The ware, as known from fragments found at Shahrain, has been well illustrated by Mr. Thompson : [3] and now that Mr. Woolley has happily found complete pots in his new excavations of 1923–4 at al-'Ubaid (Pl. XLIX), we are better instructed in the matter of the types (see Ch. VIII). The question of the relation of this early Babylonian and Elamite ware to the other well-known early Elamite wares found by de Morgan and his helpers at Susa and Tepē Musyān has been recently discussed in detail in a special monograph on the early pottery of South-East Asia [4] by Mr. Henri Frankfort. I gather that he considers that there is some relationship between this South-Babylonian and Elamite coast ware (if one can so describe it) and the ' poterie épaisse ' of Musyān and eventually the first style of Susa (that beautiful ware with its highly stylized animal patterns and its geometrical bands and chevrons which M. de Morgan considered to be of such very high antiquity), but none with that of the later strata at Susa.[5] The Susian ware, however, is much finer, and never fired so hard. In all probability the first Susian is much older than the second Susian and the Babylonian and Musyān wares : Mr. Frankfort considers that there is, in fact, no relation between the two Susian styles at all : the first died out long before the second arose. Now it is the Susian styles (related or not) and that of Musyān that can properly be described as Elamite. The Bandar Bushir

[1] *Mém. Délég. Perse*, XV (1914), p. 1 ff.
[2] *Journ. Centr. Asian Soc.*, 1922, p. 125.
[3] *Archaeologia, loc. cit.*, Figs. 9–11.
[4] *R. Anthrop. Inst.*, occasional paper No. 6, 1924.
[5] I am not certain that I altogether agree with this, as there is considerable similarity between some of the Susa II geometrical designs and those of Shahrain and al-'Ubaid.

pottery we may call ' coast-Elamite ' if we will, but in reality it is, being distinct from that of Susa and Musyān and identical with the early Babylonian, rather to be described as Babylonian, with the pottery of Shahrain and al-'Ubaid.[1] But the identity of the Shahrain-'Ubaid ware with that of Bandar Bushir, though it argues identity of race, does not prove that race to have been Elamite rather than Sumerian. The relationship of this painted ware with its geometric and (occasionally) naturalistic designs to that of Susa I proves no more than what we knew already, the close relationship of the Elamite and Sumerian cultures. And the general relationship of Shahrain-'Ubaid-Bandar Bushir not only with Susa but also with the early geometric pottery of Sāmarrā in northern Babylonia, and similarly decorated wares found all over the Near East from Thessaly (or even possibly Bosnia) *viâ* Asia Minor to the kurgans of Turkestan, to Tuz and Muḥammadabad in Eastern Persia and to Nāl in Baluchistan, and even in China (Honan and Fêng-tien or Manchuria), proves only a certain community of culture over all these lands at the beginning of the Age of Metal.[2] Though the discoverers of the Sāmarrā pottery would put it later in time than this, it does not seem possible to date it later than the Chalcolithic period, to which also Shahrain-'Ubaid-Bandar Bushir belongs.

We may leave the Elamites out of account therefore so far as al-'Ubaid and Shahrain are concerned, not being justified in refusing to the Babylonian pottery the title proto-Sumerian, rather than pre-Sumerian. It seems probable enough that it is merely the earliest Sumerian. That it belongs to the Chalcolithic period seems to be settled by Mr. Reginald Smith's examination of the stone implements. He pronounced them, despite their crude appearance (being mostly mere flakes and cores), to be all of the Chalcolithic age, as the arrowheads evidently are. The use of copper was then already known, and so this pottery is not Neolithic. The date of this culture in years B. C. can only be guessed. But if the First Dynasty of Ur, to which the later objects found at al-'Ubaid belong, goes back to 3100 B.C. (see Ch. VII), we are justified in regarding *c.* 3500 B. C. as the lower limit of the primitive culture. There was a gap of some considerable time between the civilization of the painted pottery and that of the drab pottery and great copper works of art, which is the oldest historical Sumerian culture known with the possible exception of a somewhat older stratum at Kish, which Mr. Woolley considers

[1] I have taken the above sentences relating to the relationship of the prehistoric Babylonian pottery with that of Elam with slight modification from my article in the centenary volume of the *J. R. A. S.*, 1924, pp. 110, 111.

[2] Hall, *Proc. Soc. Bibl. Arch.*, 1909, pp. 311 ff.; *Antiquaries Journal*, v (1925), pp. 310–11; *J.R.A.S., Centenary Vol.*, 1924, pp. 111 ff.; for the Baluchistan finds (Nāl) see Sir J. Marshall in *Ill. Lond. News*, March 6, 1926, p. 398 ff., and for the Chinese J. G. Andersson, in *Palaeontologica Sinica*, ser. D, vol. i: ' The Cave-Deposit at Sha Kuo T'un in Fêng-tien ', ' The Yang-Shao Site in Honan ' (Peking, 1923), and ' An Early Chinese Culture ' (*Bull. Geol. Surv. China*, No. 5; 1923). Mr. Andersson compares his Honan pottery (in the Stockholm Museum) with that of Anau and that of Tripolje in Bosnia. There is probably a connexion between all these geometrical wares, ' unless we are to deny all probable connexions of this kind at all, and say that such geometric pot-painting may have been invented anywhere at any time. And the fact remains that we are talking of (more or less) one particular portion of the globe and more or less of the same period. Geometrically decorated wares from Algeria and Mexico obviously do not come into the matter either in place or date ' (*J. R. A. S., Cent. Vol., loc. cit.*).

(judging from the evidence of the ceramic morphology) to bridge the gap between our two periods, and is not represented at al-'Ubaid. Further excavation at Shahrain may reveal it there.

Until Mr. Woolley's work at al-'Ubaid we did not know the exact correlation of these prehistoric surface-finds there. My own work was restricted by the shortness of the time at my disposal to the excavation of part of the temple-building which I had found. I had no time to search for the original strata of the prehistoric objects as Mr. Thompson had done at Shahrain with his *sondages*, and as Mr. Woolley did at al-'Ubaid with his excavation of the primitive settlement and graves in a low mound near by (see Ch. VIII), which confirmed what had been with confidence assumed by me on general grounds as well as on Thompson's evidence from Shahrain, that the painted pottery found on the surface was primitive and belonged to the people who used the flints.

The surface-finds were strewn over what looked like a sort of fan of detritus washed down from the mound extending for some distance round the south-west and southern sides of it. It had been supposed that the similar ' fan ' on the same sides of the mound of Shahrain did in reality consist of detritus washed out of the light sandy mounds by rain and carrying all sorts of objects with it some distance out on to the desert surface. The discoveries of Mr. Woolley, however, have rendered this theory untenable, at any rate in the case of al-'Ubaid, where it was in any case always very doubtful, owing to the small size and height of the mound and the fact that none of these objects were found in the mound itself. They are remains from the primitive settlement and, as Thompson originally suggested as an alternative explanation [1] with regard to similar surface-finds at Shahrain, from a cemetery which Mr. Gadd in Ch. VII has shown reason to think was the most ancient cemetery of Ur, the sacred place on the other side of a stream (? the Euphrates ; see p. 7) where the oldest dead of Ur were buried under the protection of the goddess of the Underworld, Nin-khursag. If there was ever any low mound in prehistoric days where the temple was afterwards built (above whose ruins the actual mound had collected as a result of the ruin of the ancient buildings)—and there must have been some slight elevation for the primitive cemetery-settlement to have been erected here at all, as a security against desert-floods—it and its contents must have been removed when the temple was built. It can never have been big enough—the present mound is not big enough—to allow of the surface-finds outside it having been swept out of its lower strata by rainstorms. Future excavations at Shahrain will explain the similar surface-finds there more fully.

Among those at al-'Ubaid are no doubt a certain number of objects that really belong to the historic Sumerian age, but the great majority appear to be primitive or even prehistoric Sumerian (Pls. XIII–XV). The Sumerian temple will have left some traces in the immediate surroundings of the mound, and broken pottery of the historic period, of a softer ware, a paler drab colour and usually without painted decoration, lies about together with the older painted

[1] *Archaeologia*, *loc. cit.*, p. 118.

ware, though not in such profusion. In the excavation of the temple the absence of the painted ware and sole presence of the unpainted is marked; but fragments of the Sumerian age were found with remains of degenerate painted decoration that was evidently a survival of the older style (p. 8).

The temple of Nin-khursag is the central feature of the site, and its excavation, which I began, has resulted in the discovery of some of the most important existing relics of early Sumerian art.

CHAPTER II

THE WORK OF THE SEASON 1919

By H. R. HALL

I FOUND al-'Ubaid in April 1919, while still at work at Ur. A careful gathering of the surface-finds was at once begun, the surrounding ground being quartered in all directions. I was greatly helped in the search by the keenness of sight of several of my Turks, the sharpest-eyed of all being a saturnine Laz from near Poti on the Black Sea, whom I found to be invaluable for this work, not only at al-'Ubaid but also at Shahrain. This man and one or two others were detailed for surface search most of the time we were at al-'Ubaid; but not all the objects they found were worth bringing back to England: useless duplicates were left behind. The *tell* seemed so important on account of its lack of late remains that I at once put a few of my most trusted Turkish diggers, under a very intelligent Bosniak sergeant, on to it to search for walls (Pl. III, 2, 3). They soon found the panelled wall of burnt plano-convex bricks, which confirmed my diagnosis of the *tell*, and in a few days had cleared the upper courses of its north-eastern long side, and turned the east corner to the short south-eastern side, but without finding any antiquities.

The wall had a particularly archaic appearance, as its bricks, measuring only 8 by 6 by 1⅝ in. (20·3 by 15·2 by 4 cm.), are of a very ancient and primitive type; plano-convex with two holes side by side on the convex side (see p. 14). The bricks were laid as stretchers in the usual way, the plane side of each resting on the convex side of that below. Grey mud mortar is used in such quantity as to hide the convexity of most of the bricks. The panels, or buttresses, are 60 cm. wide; the recesses between them 50 cm. wide and 15 cm. deep. The stone foundations of this wall were excavated by Mr. Woolley. Stone also appears elsewhere. Tracing the wall northward, we continued along the north-west face, from which projected a curious buttress of brick (Pl. XXV, 1) which Mr. Woolley has since identified as a drain (p. 69), and then round again to the long south-west face. Here the panelled wall of plano-convex burnt bricks soon ceased abruptly, to be continued by a plain wall of large plano-convex burnt bricks laid in thick courses of the usual grey mortar.[1] Beyond this stretch of wall, we came to a stone stairway,[2] built of courses of gypsum slabs roughly laid on a mud-brick ramp: we found seven treads overlapping one another and measuring nearly 2 m. long by 25 cm. in height and width, but owing to the necessity of bringing the work to an end, it was not possible to proceed any further with the excavation of the building, nor was it deemed necessary, since I fully expected to return to continue the work next winter. Mr. Woolley fully investigated the stairway when he succeeded me, and the result of his work appears in Ch. IV; Pl. XXV, 2.

[1] This gave them the appearance of rectangular bricks, for which they were at first mistaken (*Journ. Eg. Arch.* IX (1923), p. 194; Pl. XXXVIII, 2).

[2] *Ibid.*, Pl. XXXVIII, 1.

Mr. Woolley's excavations of 1923–4, completing mine which I was obliged to abandon owing to the heat and lateness of the season in May 1919, have shown that the building was a small temple on a platform of crude brick, of which the burnt brick wall I began to excavate was the revetment, approached by a central ramp or stairway, which was set very much awry to the platform, itself so badly laid out that its outer wall is extremely asymmetrical: no one angle is the same as another, and the south-east face, where the ramp is, races away southward quite out of alignment with the opposite north-west face (Plan, Pl. II). The whole building measures about 110 ft. (33·5 m.) long by 75 ft. (22·8 m.) wide. Above it had been built a tiered platform of large oblong crude bricks, above which is a pavement (?) of burnt bricks, measuring 11½ by 8 by 2½ in. (29·2 by 20·3 by 6·3 cm.), stamped by King Dungi or Shulgi.[1] The old building was then undoubtedly very much older than the time of Dungi, and there was no doubt that it was considerably older than that of Sargon of Akkad. This platform, which may have been intended as the base of a small ziggurrat (?), to be placed on the razed ancient building (there is no doubt that it must have been razed for Dungi's purpose, and the height of the ancient wall is the same all round), has disappeared except at the south-east end.

Its bricks are interesting on account of the preservation in them, apparently as a more or less decorative feature, of two holes side by side in the centre of one face. In the more ancient plano-convex bricks these are placed diagonally across the convex face in such a position that they seem clearly to be devised for the purpose of carrying the brick, by the insertion of thumb and forefinger, when it was wet. They may also have fulfilled the function of affording a grip to the bitumen 'mortar'. In Dungi's bricks they have evidently lost their original function and have become mere ornaments (Pl. XII, 7).

At the south-east end of the building the platform appeared to extend a short distance beyond the limit of the older building, and in order to trace the wall of the latter it was necessary to remove some of the crude-brick foundation of the platform. Beneath this we found the deposit of copper figures and other objects which is the most important discovery made by the expedition, and is specially interesting on account of its close analogy to the deposit of archaic and Sixth Dynasty Egyptian objects, including the copper figures of Pepi I and his son, found at Kom al-aḥmar (Hierakōnpolis) by Mr. J. E. Quibell and Mr. F. W. Green in 1896.[2]

The work of following the wall round the east corner of the building proceeded quietly for two days during the first part of April, without any discovery of antiquities beyond some fragments of Sumerian pottery. I visited the work once a day by car from Ur. At the close of the third day we came upon the stumps of three mosaic columns, lying at angles from 60° to 45° with their upper parts towards the wall at a distance of about one to three feet

[1] [Both these readings of the name are possible: it cannot yet be decided which is correct. C. J. G.]
[2] *Hierakonpolis*, ii. p. 27 ff.

from it. Next morning on my arrival they were carefully uncovered, and I then went off to look for surface-finds with the help of my lynx-eyed Laz, leaving my Arab head-rais, who happened to be with me that day on my visit of inspection, to supervise their clearing and prepare them for a photograph. Suddenly he came rushing to me about half an hour later, saying that they had found '*baha'im*' (wild beasts) and that the Turkish *shaūsh* was so 'contented' (*mabsūṭ*) that he feared he would grub them up with his own hands if I did not come quickly. Wondering what kind of frightful 'behemōth' had been discovered, I was on the spot in five minutes, to find that the *shaūsh* had been more sensible than his Arab civilian colleague had expected: for instead of falling on the 'beasts' to grub them up, as an Arab might, he had promptly ordered his men to hold up their operations until I arrived. What I saw was an unexpected treasure. While the Arab himself had uncovered beyond the third mosaic column (from the east; C: Pl. II) the muzzle of what seemed to be a copper or bronze figure of a bull, the Turks a few feet away to the left had found a much more 'fearful wildfowl', with which they were intensely pleased. I saw the top of the head of a lion (P: Pl. II) appearing above the earth at a distance of about eight feet from the south-east wall and at a depth of about six: it faced south: close by, at a distance of about eighteen inches, appeared the side of another head. They appeared black: they had staring red and white eyes and grinning white teeth. A very short examination showed me that they were of metal or of what appeared to be wood covered with corroded and broken metal, that the eyes and teeth were of stone or shell, and that they were in a most fragile condition, which would necessitate the greatest care in their extraction from the stiff soil in which they were embedded. We were not working in loose sand like that of Shahrain, or even in the more solid but still pliable earth of Muqayyar, but in a stiff clay beneath stiffer crude brick, that needed hard work to dig it. The bull, too, that had been found was obviously in a most delicate condition. We therefore suspended operations for the day, and next day the two most skilful of the Arab raises started work at al-'Ubaid under my supervision.

The bull (J) had first to be dealt with. Its head was about a foot away from the second projecting panel of the wall: it was therefore the nearest of the animals to the south-east corner of the platform. The top of its head was about two feet below the level of the top of the wall as found. It lay underneath another prostrate mosaic column, beyond which, after an interval of a few inches, was apparently one of copper. Being carefully investigated, this proved to be the case: it was a great copper cylinder, or more probably a clay or wood column cased in copper. Cheek by jowl with this, in the same row with it and lying at the same angle, was another and very finely-preserved mosaic column-stump, lying at an angle of 60°. Immediately beyond this appeared the head of another bull (L) with horns: the first had lost its horns (Pl. IV).

In order to get at the first bull it was obvious that the columns had to be removed. I had no means of preserving them whole, and the mosaic could after all be carefully taken to pieces and put together again. Accordingly

this was done, and the tesserae have all been brought back to England, to be reconstituted in the British Museum. The copper pillars seemed in a hopeless state of oxydization: nevertheless their metal was brought back and it may be possible to do something with them. The horned bull (L) was first uncovered, the last copper column (H) being left for the time to give it support on account of its fragile condition. The bull stood on a curiously clumsy metal base, or pedestal, apparently a copper-sheathed balk of wood. The first bull when uncovered proved to rest on a similar base, of which the metal was torn open at the fore-end, whereas at the other end it projected considerably beyond the animal's tail. Just behind this projection appeared the twisted tail and the lower parts of the legs of a third, smaller, bull (K), but no more: it was broken off above the knees and in front of the legs.

Then, within a few minutes of its complete uncovering, but luckily not until it had been photographed, the first bull (J) collapsed into a heap of green powder, leaving only its face intact. As I had no means of packing or transporting the second bull (L) at the moment, it was, after photographing, reburied as it stood in order to avoid a similar disaster, if possible. The third (K), of which nothing but the legs and tail remained, the rest having been destroyed anciently, was held together only by clay and so terribly fragmentary that its pieces were picked out to be brought back, like the columns, no attempt being made to keep it whole. The second, after it had been removed later on, was packed whole, but it was but a cracked mass also held together merely by mud, and the voyage did not improve it. It may, however, be possible to put it together again on its wooden *âme* or block, which had survived, whereas nothing was left of this in the case of the first bull.

A bull's horn was found of thick gold, hollow, and filled with bitumen. This find caused a dispute between the Turkish sergeant and the Arab raises, as the former suspected the latter of desiring to appropriate it, and refused to let them touch it, giving it to me with his own hands, much to their annoyance. 'Whether I am right,' said he, 'who knows but Allah, who sees what is in men's hearts?' The companion horn was never found (see p. 30).

The figures of these bulls were very coarsely fashioned, but a detached bull's head, of which the body had been smashed to pieces anciently, was also found, which is very fine (Pl. v, 3): one of the best examples, not only of Sumerian but of any ancient animal portraiture known, fit to rank with the silver bull's head rhyton from Mycenae or (in non-metallic material) with the steatite bull-rhyton from the Tomb of the Double Axes at Knossos. It is of course 1,500 years older than these, at least. We can now surmise that the more ancient art of Sumerian Babylonia may have had more influence upon the development of Minoan Cretan art than has generally been supposed. The inspiration of such works in relief in stone as the Hagia Triada vases seems very probably to have been derived from Babylonian art. And that art may have influenced the Cretan through the medium of Anatolia in the matter of animal representations, as in other things, at least as much as did, unquestionably, that of Egypt.

Four small copper heads of birds, rudely made of hammered copper plates

nailed together and (evidently) on to wooden blocks which have disappeared, possibly represent the ducks of the goddess Bau or Gula, but other identifications are possible. They were found above the bulls (Pl. v, 5).

There were three pillars of copper with clay (originally wood) inside them, and five of mosaic work with triangular tesserae of red sandstone, black bituminous limestone, and mother-of-pearl (nacre), arranged in geometric patterns and fastened at the back by means of copper wire through V-shaped perforations into a layer of bitumen which was apparently spread over a wooden core now replaced by clay. These pillars and those of copper had no bases, and rested on nothing but the earth (not of course in their original position) : they had preserved only about three feet of their height, and that only because they had been knocked down and lay on their sides at an angle of forty-five degrees : nor were any capitals visible (Pl. IV ; Fig. 3, p. 40). This mosaic work is highly curious, and has already been found on a much smaller scale in a ' colonnette ' dedicated by the Sumerian king Eannatum, from Telloh, and on offering-stands from a tomb at Tepē 'Ali Abad, near Tepē Musyān (Louvre).[1] It is strange to find an example, at the very beginning of civilization in these parts, of a style of art still extremely fashionable in the Arab and Indian East. My Indian mechanics and guard were delighted with them, and their discovery confirmed their idea that the lions and bulls were really ancient Indian, and that in days long past their ancestors had conquered Babylonia, an idea very prevalent among the Hindu rank and file in Mesopotamia.

The primitive three-colour scheme of red, white, and black seems to be characteristic of early Sumerian art. I found it in the crude decoration of the Sumerian houses at Shahrain with their bands of red, white, and black, or plain red and white paint on the stuccoed crude brick walls.[2] And one sees it also on the curious flower-cones (if they may so be called) which were found at al-'Ubaid mixed up with what has already been described. They are cones of pottery, having heads at the broad end expanding into flowers, with seven or eight petals of red sandstone, black bituminous limestone (as in the case of the pillars), and white limestone (not nacre), fastened on as before with twisted wire through a V-shaped perforation. Judging from the analogy of the plain pottery cones, already mentioned (p. 8), which Loftus identified as wall-decorations (see p. 49 ; Figs. 15, 16), it would seem that these flower-cones are in reality rosettes, with long conical shanks for insertion into walls. Mr. Woolley, however, prefers another view, which will be found stated by him in Chapter VI.

We now return to the lions, the complete excavation of which (Pl. VIII) was taken in hand after the columns and the bulls had been dug out. I had seen part of one, and had a glimpse of another, but to get at them was difficult.

[1] These Elamite examples of the same technique are apparently small offering-tables or altars : ours at al-'Ubaid are of course architectonic columns, despite the doubts of Frankfort (*loc. cit.*, pp. 65, 129), who assumes that they are of the same nature as Eannatum's ' colonnette ' and the Musyān offering-stands. They are too big to be anything else but columns, and it is now known from Kish also that the column was used in early Sumerian architecture, in spite of Andrae's doubts (*O.L.Z.* 1924, 444–5).

[2] *Proc. Soc. Ant.*, 1919, p. 28.

On the top of them was a mass of twisted, crushed, and contorted copper—beams sheathed in copper, pipes,[1] bars, and sheets—lying in incomprehensible confusion, and nearly all in an irremediable state of oxydization. Beneath this layer, and luckily preserved by it from great damage, were found four copper heads and two foreparts of life-size lions, each head filled with bitumen mixed with straw and clay, so that the metal formed a mask over the bitumen, which preserves the form of the metal mask, like a cast from a mould.[2] Owing to the bad state of the metal, this fact is most fortunate. Each of these heads had large eyes of red jasper, white shell, and blue schist, the jasper representing the iris, the shell the white of the eyeball, and the schist the lids : each eye being in three pieces, accurately fitting, and fastened by copper wire into the bitumen at the back. Each head was also furnished with teeth of white shell, the incisors being separate, the molars in one piece at either end of the mouth : all being fastened, like the eyes, with copper wire to the bitumen core. In the mouth of each was a red jasper tongue (missing in one case). The lion was thus represented grinning ferociously, with wide open eyes, according to the usual Sumerian convention, which the early Egyptians also used but very soon abandoned for the typical impassive lion of Egyptian art, whereas the grinning lion continued and continues to be typical of that of the Orient. The characteristic round muzzle of the Sumerian lion, so distinct from the equally characteristic square muzzle of the Egyptian lion, was very apparent.

Of these heads (three of which are here illustrated, Plates VIII, X–XI) the bitumen core of one was so badly damaged that it is impossible to restore it. The foreparts, and what are possibly very rudimentary forelegs (there were no hinder-parts) of the first two, were formed of hammered copper plates roughly fastened together with nails over a wooden block or *âme*, which when found had almost entirely disintegrated and had become replaced by infiltrated clay. The copper plates rudely represent the fell of the animal. In the case of the second two, these ' bodies ' had disappeared. It is evident that these four lions performed some architectural function, jutting forth from the wall from which they had fallen. They must have fallen at one blow, as they were found in a line, side by side. Above the third and fourth of them were found, lying athwart, two small heads of lions, leopards or cats (it is uncertain which animal is intended) with pointed ears, no separate eyes, teeth, or tongues, and no bodies of any kind (Pl. XI, 6–8.) The copper covering of these two heads was exceptionally well preserved, as also was that of one of two smaller lion-heads (intermediate in size between the life-size heads and those of the leopards, whereas the other has wholly lost its outer covering, to which only a green stain testifies here and there on the bitumen (Pl. XI, 2, 3–5). These two lions, which were found close by, placed as if continuing the larger row, have smaller eyes of the same type as those of the larger animals, but have not their grinning teeth, though the red tongue is present. Of these,

[1] These may, however, be copper-sheathed beams from which the wood has disappeared, disintegrating into clay.

[2] Compare the statue of Bel in Daniel ii. 34 and the Apocrypha (Bel and the Dragon, v. 7), which was ' brass without and clay within '.

like the leopards, no bodies apparently existed.[1] It has been suggested to me by Mr. Woolley that these are really the two heads of the upper relief of the lion-eagle Imdugud or Imgig, found later close by, which may have been two-headed, he thinks. But as we have no instance of this (see p. 23), the head has been restored according to the usual representations of Imgig, as single. Their position as found is compatible with Mr. Woolley's idea.

When the forepart of one of the lions was recently being examined at the British Museum with a view to its restoration, in a mass of clay attached to it was found the perfect head of a bull of the same type as those of the recumbent figures found later by Mr. Woolley, but with the addition on its forehead of a crescent in relief, the emblem of the Moon-God. The copper pin for fixing the head to its body, as described by Mr. Woolley on p. 86, was intact. It is illustrated in Pl. VII ; see p. 30. Possibly it had come from the figures found by Mr. Woolley (on the other side of the stairway) or belonged to another group of the same kind on the east side, which has disappeared.

FIG. 2. Inscription of Kur-lil (see Pl. VIII, 6).

Finally, there remain to be mentioned the fragment of the limestone figure of Kur-lil, keeper of the granary of Erech, and the almost complete trachyte figure of a man who is very probably Kur-lil. Both were found together, a little below the level of the lions and close to them. The first is merely a torso (Pl. VIII, 6), on the back of which, however, is cut a very archaic inscription (Fig. 2 ; Pl. XL) recording the gift of the statue by Kur-lil in the temple of Damgalnun (see p. 125),[2] which was presumably al-'Ubaid: the goddess Damgalnun (Nin-khursag) being the spouse of Enki or Ea, the god of Eridu (Shahrain), near by. The second is complete except for part of one leg. It is a squatting figure of a man of the usual Sumerian type, with perfectly preserved head and face, about 1 ft. $3\frac{1}{2}$ in. high. The head, shaven but for the eyebrows, and with prominent eyes and nose, is of the type characteristic of Sumerian representations of the human portrait. The rest of the body is treated summarily, especially as regards the hands and feet, and the legs have suffered from disintegration caused by damp, one foot having disappeared. (See p. 27 ; Pl. IX.)

On the shoulder is a single sign, the rest of the inscription having been worn away. Both figures were found lying overturned. These figures dated the find. From their style they were evidently of the early Sumerian period, very likely the period of Ur-Ninâ (*c.* 3000 B. C.) or somewhat earlier, to judge

[1] In error only one of these two smaller lion-heads was recorded in *Proc. Soc. Ant.*, Dec. 1919.

[2] Damgalnun or Damkina can be identical with Nin-khursag. For Mr. Gadd's translation of the inscription see ch. vii, p. 125.

from the characters of the inscription of Kur-lil. So that they were no doubt contemporaneous with the building, or not much later than it. This dating of 1919 was entirely confirmed by the discovery of the tablet of A-anni-padda in 1923 (p. 61), which shows that the building and its monuments belong to the First Dynasty of Ur (*c.* 3100–3000 B. C.).

The work of excavating the lions was a source of the liveliest interest to the sepoys of the Indian guard (of a Rajput battalion) in charge of the prisoners, who mounted guard daily at al-'Ubaid. They were quite convinced that we were discovering gods. When off duty they would squat down by the side of the lion heads and hold animated discussions as to their nature. I only regretted that owing to my ignorance of Hindustani I was unable to give them any useful information, but whenever any of the British officers of the battalion appeared on a course of inspection, their interpretership was always respectfully solicited by the *naik* and his men to obtain explanations of these remarkable appearances. I found that the more intelligent Turks, like the Bosniak sergeant, one of his fellow sergeants who was a Macedonian from Monastir, and the Constantinopolitan *bash-shaūsh*, or sergeant-major, were more intelligent in the matter than the Indians. Although Moslems, and not setting much store by the works of the *Juhāl* ('the Ignorant Ones'), yet they came from Greek lands and from Europe, and something of the European attitude to archaeology was theirs: they were finding old, dead, yet to many very interesting and valuable things, still nothing that compelled any deference greater than that generally given to the aged. The Indian attitude was different, and to one unused to it very queer and even uncomfortable. These things, though old, were to them yet alive: they were perhaps of divine origin, nay themselves gods: one felt like a sort of unbelieving high priest thus officiating at their resuscitation. And when the row of large lion heads was finally exhumed, I fully expected them to be found one morning decorated each with a caste-mark of red paint, and with an offering of ghi before them, and had tulsi, or any other flowers been available, garlands would surely have adorned their necks. Also on one occasion the Indian chauffeur of a visiting officer stole the eyes of one of the gods. Ostensibly he was a Moslem, but Indian Moslems often seemed very odd believers to their Arab co-religionists, and this was indeed a queer sort of Moslem, for when arraigned and sworn upon the Holy Qur'ān to speak truth, it appeared that he believed in the divine efficacy of a god's eyes as much as any Hindu, and had confiscated them to his own use on this account. One was recovered, but the other had apparently been stolen from him, probably by an outraged Hindu, who thought himself a more appropriate owner, and we never saw it again. My two Indian chauffeur mechanics, while interested, were not so much impressed, one being a Kashmiri Muslim, the other, a Hindu from the far North-West, who smoked a short pipe and called himself '*Mr.* Jaganath'.[1] He had no superstitions about the works of the forefathers of the 'Irāqis.

[1] The name Jagan Nath (his real name, not a nickname) was very appropriate to a chauffeur! The Indian motor-drivers were veritable Juggernauts, with the best of intentions.

So the task of extracting the ' baha'im ' was carried on by means of the knives of the two Arab raises, for which the way was prepared by very careful pick-work by the Bosniak sergeant, his Macedonian colleague, and a hefty Thracian from Gumuldjina, with two methodical and dependable Anatolians to sift the debris, under the curious and rather fearful eyes of the Indian soldiers. I now spent most of the day at al-'Ubaid, leaving the superintendence of the work at Ur, which was now slowing down, to the British sergeant-major, Stanley Webb, in charge of the prisoners, and the Arab head rais 'Amrān ibn-Ḥamūd, with the assistance of another Arab and the Turkish *bash-shaūsh*. It was of course necessary to restrict the Ur work to such as would not present problems in my absence, but I had every confidence in the archaeological intelligence of 'Amrān, and the common-sense and interest of Sergeant-Major Webb to prevent any serious mistakes. Nor was I deceived. This period of work, however, did not last very long, as by the middle of April I was already preparing to move my camp to Abu Shahrain, which was effected on Easter Monday, April 21, as had been arranged with the shaikhs of the Dhafir Beduins long before the discovery of al-'Ubaid. As it was impossible to alter the date of this important move, for which so many other dovetailed arrangements had to be made, it was necessary to suspend the al-'Ubaid work while I was absent at Shahrain, though that at Ur might still go on in an even more restricted form, giving the maximum of assurance against error. Accordingly, while Sergeant-Major Webb was left at Ur to superintend the clearing of the south-east face of the ziggurrat (and thus initiate the work of clearance that was carried out with such success later by Mr. Woolley and Mr. Newton), with an Arab rais, the *bash-shaūsh*, and the majority of the Turks I went off to Shahrain, where the Dhafir shaikh and thirty of his men to dig (most of whom had worked there the preceding season under Mr. Thompson) awaited me. I took the *rais al-awwal*, 'Amrān, two other Arab raises to look after the Badu' diggers, and twelve Turks, including the two European sergeants, and the al-'Ubaid work came temporarily to an end. The two stone figures had been removed to Ur immediately after their discovery and packed up at once. The tesserae of the mosaic pillars had preceded them. The second bull now followed, whole, in an immense bundle of sacking to avoid jolting, if possible, in a Ford vanette, which took it to Ur as slowly and carefully as possible, where still in its sacking it was packed.[1] The lions were covered up again lightly with earth to secure them during our absence from two dangers: one barely possible in May, namely rain; the other much more probable, military souvenir-hunting. They had to be dealt with later, as it would be necessary after removing them to pack them on the spot for transport to England: there was no time to pack them now, and to remove them now to Ur would merely mean a double lift, a notable objection in the case of such weighty objects. Accordingly they were left, protected from evil as we have seen, till my return from Shahrain, when it would be possible to deal with them finally, and at the same time complete the excavation of the *cache*,

[1] Unluckily the precautions taken were not sufficient to keep it intact during the journey to England.

which it was not possible to finish in the time at disposal before leaving for Shahrain.

On the conclusion of the short but intensive campaign at Shahrain, a fortnight later, on May 8, I moved the whole Shahrain camp—*minus* the Badu' diggers of the Dhafir of course—by car and camel ten miles to al-'Ubaid, and settled down there for a week's work with the four Arabs and the fourteen best Turks, while others came out when necessary by car from Ur. I put up my tent on the north-east side of the mound and camped there as I had at Shahrain; Ur being worked (so far as the rapidly finishing effort at the ziggurrat was concerned) from al-'Ubaid through the sergeant-major and *bash-shaūsh*. On May 16 the work came to an end, and I removed camp to Ur again for the task of packing the antiquities found there and at Shahrain. The week's work had been hard. As may be imagined by those who have been in Mesopotamia in May, the heat was terrific, and was found so even by the Arabs. We worked every day in a temperature that finally reached 116° Fahr. in the shade at midday. Time so pressed that it was not possible to snatch much time for the midday siesta. At Shahrain work began at 5 a.m., ended at 10, and went on again at 4 p.m. till 7 o'clock. But now at al-'Ubaid we only knocked off from eleven till two. A tarpaulin was rigged up to keep the sun off the heads of the diggers (Pl. IV, 7), and I regularly wore my heavy army great-coat to keep out the fierce rays, as well as the biggest topi I could get. Most of the flies, flying beetles, and dragon-flies that had rendered work at Ur and also at 'Ubaid miserable in April were now dead, killed by the heat. But heat and dust alone were enough to make this last week's work extremely arduous.

First we cleared off the temporary covering of earth we had placed over the 'baha'im' before going to Shahrain. We found the four lion heads and the two 'leopards' as we had left them. Now came the task of removal. I badly needed petroleum wax, quantities of it, to preserve them, but how to obtain it under war conditions I knew not. The little I had brought from England—a parting gift from a friend—in my exiguous captain's kit had been used for iron objects at Ur. I obtained candles with the idea of melting them down, but they were made of stearin or some Japanese composition, which did not melt well: I did not dare to use it for fear of accidents. So we had to be content with seeing what careful packing (as careful as was possible under the circumstances) would do to preserve these remarkable antiquities. And, given the fact that our packing was mostly desert-sage torn up from the ground, our boxes old ones kindly given us by the Railway Administration and botched into shape by Turks with axes, and remembering the gentle and delicate handling given to packages in war-time by Jamaican negro military stevedores, it is a wonder that these antiquities have survived to make as good a show in the British Museum now as they do! Once discovered, however, they could not be left where they were.

While packing was going on, digging proceeded, and on the first day of the renewed work the most remarkable object of all was discovered (Pl. V, 6–8; VI). This is a great relief of copper within a copper frame, measuring 7 ft. 9½ in. long by 3 ft. 6 in. high (2·375 m. by 1·07 m.) on a wood backing; it represents

the lion-headed eagle Im-dugud or Imgig,[1] the mythical bird of the god Ningirsu, holding two stags by their tails. The stags are in very high relief (3 in.), with their heads turned outwards and in the round: their antlers of wrought copper are entirely free from the background and projected beyond the rectangular framework or border of the relief: a feature new to ancient Oriental art. The heads were probably (see p. 35), the bodies and legs certainly, hammered and nailed together. The antlers (of a remarkable size and number of tines !) were wrought and hammered, and soldered into their sockets with lead. This lead had so expanded as to burst the heads, one of which was however in good shape, whereas the other collapsed : this has been restored. This antithetical group is well known in Sumerian art, and good examples of it may be seen on two tablets of Ur-Ninâ's time, on the silver vase of Entemena, and in the relief on a mace-head of Enannatum in the British Museum (No. 23287). The lion-eagle occurs alone on the Stele of the Vultures (where once it is held in the hand of Ningirsu) in the Louvre:[2] and *cf.* two small objects from al-'Ubaid (TO. 288, 319 ; p. 96, Plates XXXV, I ; XXXVII). The latter are of the same date, presumably, as the al-'Ubaid relief: the Louvre objects are rather later (about 2900–2800 B. C.), as is also the British Museum mace-head. The al-'Ubaid relief is the largest instance of the antithetical group yet known, and as a work of art is unique. There is no doubt that it is of the same period as the other objects discovered, and so dates to *c.* 3100 B. C.

Imgig sometimes holds lions, sometimes ibexes, sometimes stags in his talons. In the case of our relief stags have been chosen. Already when discovered the figure of Imgig himself was very shadowy, and could be discerned only by the eye of knowledge, for the metal was so terribly oxydized that hardly any of it remained except the green powdery fragments that represented the body and wings, while the head had entirely disappeared. The stags, on the other hand, were well preserved. It was possible to put the whole relief together, and the result, seen in Pl. VI, reflects great credit on Mr. Beck, the formatore of Messrs. Brucciani, who has done the work under my supervision. The head is a complete restoration on the model of the two 'leopard' heads, which are of the type of an Imgig-head. There may have been two heads, as Mr. Woolley suggests, and we may actually have them in the two 'leopard' heads. But we do not know this, and I do not know of any example of Imgig two-headed, though Jastrow has assumed[3] that he is two-headed on the 'Stele of the Vultures', but without the slightest reason so far as can be seen.[4] Two-headed eagles are known in Hittite art,

[1] [More correctly, *Im-dugud*, the second sign being properly , though it is occasionally written . The following *-da* or *-de*, which is frequently found, proves, however, that *dugud* is the correct reading in all cases. Literally the name means 'heavy storm'. By the Semites this bird was called *Zû*. C. J. G.]

[2] De Sarzec, *Découvertes en Chaldée*, ii. Pll. 1, 43 *bis*, 5 *bis* (2), 4 *bis*, 48.

[3] *Civilization of Babylonia and Assyria*, p. 42.

[4] The publication (*Découvertes*, 4 *bis*) shows that the bird in the hand of Ningirsu has clearly a lion-head, though broken, and Jastrow's assumption that it was in this case *double* is purely gratuitous. Heuzey (*Découvertes*, i, p. 183) thought at first that it was a double eagle-head, but soon recognized it as a single lion-head, full face. Other broken representations (*e.g.* even the Ur-Ninâ tablet, *Découvertes*, Pl. 1) give no suggestion of two heads : in this case the lion-head seems to be merely turned on one side,

but I cannot trace them yet in Babylonia. So we have no authority as yet for restoring Imgig's head except as one. And personally I do not think that these two heads could combine well to make a double head, at any rate on a single neck. They are both complete by themselves. And they seem to me a trifle small for their proposed position.

There is no doubt that the head must have projected beyond and above the frame, like the stags' antlers.

When found the group stood within a foot of the *ziggurrat*-wall, parallel with it, and on the same level. Whether this was its original position or not, or whether it was originally a decoration of the wall, placed on a bracket or corbels a few feet above the ground, and had slipped down to the position in which it was found, it is difficult to say. Mr. Woolley considers that it probably was placed above the doorway of the building, at the head of the ramp (p. 116).

It is a part of the same scheme as the lions and the bulls, and is of the same period. The bulls should be guardians of the entrance to the building : the lions were supposed by my Indian mechanics to have been supporters of a great copper throne-platform, a *gadi*, of the type still known to the Orient, like the peacock throne that Nadir Shah took from Delhi to Tihrān. Babylonian kings were wont to sit on their thrones outside the gates of their cities, there to receive suppliants and deliver justice, as Sargon of Akkad is represented in the story of the ' King of the Battle '.[1] The mass of smashed-up copper that was found above the lions may be the remains of the throne itself. But Mr. Thompson considers the lions also to be guardians,[2] and Mr. Woolley has found a very probable position for them which will be given in his Chapter VI, stating his views as to the reconstruction of the temple.

The work of disengaging the Imgig relief from the hard clay and disintegrated mud-brick which covered it was difficult, and was combined with that of packing. After the face was uncovered, and photographs taken, in order to remove it safely it was necessary that the box to contain it on its voyage to England be built up around it, and the hot-smelling desert-sage be stuffed in as packing to deaden concussion, while it was being carefully cut away from its last clay moorings. Finally the long thin box was completely built round it and only three ' feet ' of clay remained on which it rested, battens having been passed beneath it in four places and nailed to the box sides. Then finally the last three supports were carefully knocked away and the whole weighty mass of copper and clay in its box was slowly turned over away from the wall face downwards. Three short battens completed the box, which was then removed in an Indian army mule-cart driven by a couple of Tamil-speaking soldiers from Madras with whom none of us, even the Rajput sepoys, were able to communicate except by signs, and went off, drawn by its team of Argentine mules, slowly lurching and lumbering over the desert to Ur (Pl. VII, 1). It arrived in England with surprisingly little damage suffered on the way. When unpacked the acrid smell of the desert-

and seen in profile, which is otherwise unknown with the lion-head but usual when the demon is bird-headed.

[1] See Weidner, *Der Zug Sargons von Accad nach Kleinasien* (Leipzig, 1922).

[2] See *J. E. A.* IX (1923), p. 193.

sage brought more than a whiff of Mesopotamia into the vaults of the British Museum, and to the astonishment of the British workmen who unpacked a good many odd things accompanied the odd smell : an entomological collection of which many specimens were still alive and kicking, after an incarceration of over two months on the voyage. Turkish carpentry was no doubt responsible for many cracks and gaps in the box, which gave these creatures air. And they probably found plenty to eat in the packing.

Tests made in various directions assured us that there was nothing more of the *cache* to be found. There were no more beasts.

Only a certain quantity of the plain drab pottery that seems characteristic of the Sumerian period was found, mostly in a smashed condition. Especially noticeable are some fragments that can hardly have belonged to anything else than drain-pipes : some small cups, and a good many stone fragments described on p. 42 (Pl. XII), besides a certain number of prehistoric pottery fragments mixed up in the soil. The white limestone head of a duck was found that had apparently wandered from one of the friezes discovered by Mr. Woolley (Pl. V, 5). An interesting object was a mother-of-pearl shell cut for the making of nacre plaques (p. 42 ; Pl. XII, 9).

The deposit occupied a space of about 20 ft. by 10 ft., and the later platform extended immediately above it, so that the impression is given that the objects were so to speak stamped down into the mud, and the bricks of the later platform laid on top of them without the slightest compunction.

It was impossible to dig below it in the time at my disposal to find the floor or pavement which should exist in front of the wall : this was left for the next season's excavation, and was reached by Mr. Woolley when that excavation was possible in 1923. He found it, a floor of white lime plaster, with a fragment of brick pavement (Pl. XXIII, 2), and a perpendicular sink or drain at the south-east corner (pp. 74, 75).

We were, too, up against a solid crude brick mass projecting from the burnt-brick wall face which I regarded as part of the superincumbent later platform, but which Mr. Woolley has shown to be a ramp stairway ascending in the middle of the south-east face of the platform. It would have been interesting for me, had I gone on, to discover that my building of al-'Ubaid was built on precisely the same plan as the forepart of the Eleventh Dynasty Temple at Dair al-bahri in Egypt, which I had found in November 1903 when digging for M. Naville and the Egypt Exploration Fund. There also there was a platform with a ramp ascending the middle of one of its faces, but one far more easily discoverable than that at al-'Ubaid, since it was cut out of solid rock and faced with stone. I came up against it that season, but the next season (Oct. 1904) when I came out to direct the work in Naville's absence till January, I was enabled to dig it out and descend beyond it. At al-'Ubaid that opportunity was denied me by circumstances, nor did I know that a ramp existed till Mr. Woolley identified it, dug it out, and descended beyond it to find his *cache* of copper objects, some like, some unlike, mine, which he has described in Chapter V.

As therefore the season was getting very late and almost impossibly hot

for excavating, and my money also was running out, I decided to stop here before the considerable obstacle that presented itself, hoping and expecting to resume next season, a hope dashed by circumstances not under my control or that of the Museum. This caused me to leave several pieces of work connected with the excavation unfinished (such as the uncovering of the wall to its foundations), and to leave many threads loose that had to be picked up and unravelled by Mr. Woolley. The urgent need at the moment was to close down, and to resume as soon as possible. That resumption was not possible for five years, but during that time no archaeologist, apparently, had visited al-'Ubaid, and Mr. Woolley found it just as I had left it.

I should like to add to this chapter some expression of my great indebtedness to the civil and military authorities of 'Irāq in 1919 for their furtherance of my work, and more especially to Sir Arnold Wilson, K.C.I.E. (then Lieut.-Col. A. T. Wilson, C.I.E.), the Acting Civil Commissioner and British Resident on the Persian Gulf; Major-General Sir George Macmunn, K.C.B., Commanding-in-Chief; and Major-General H. C. Sutton, C.M.G., Commanding Lines of Communication at Baṣrah. Without the active help of these officers my work could not have been carried out, and to them and to their subordinates I desire to express my thanks, while at the same time placing on record the great extent of the help they so freely gave to the work of the British Museum.

CHAPTER III

DESCRIPTION OF OBJECTS FOUND: 1919

By H. R. Hall

§ I. THE TEMPLE DEPOSIT

I. *The Votive Stone Figures.*

1. The squatting male figure (No. 114207) of Kur-lil (?) in greenish-grey trachyte was found lying on its back, with the head towards the wall of the platform, at a level about 8 in. below and immediately to the east of the first lion (Pl. VIII, 4). Its discovery is described on p. 19. There is no trace of inscription other than the sign on one shoulder. It is perfect except as regards one foot, though a good deal disintegrated in its lower parts. On it are traces of red paint. Height $14\frac{3}{4}$ in. (37·5 cm.). It is a characteristic example of the art of the early Sumerian period, as exemplified at Telloh and Ur, with the shaven skull, the full and fleshy nose with strongly marked nostrils, the great staring eyes, which stand out on the surface of the face with no hollowness of any kind, the roughly marked ears close to the head, not projecting as the early Egyptian sculptors represented ears. The hands and feet were always of the most summary style, and have not been improved by the disintegration that had attacked the stone from the arms down; the hollow of the back is represented by a deep line. At the back the upper edge of the garment is represented by a strong ridge (Pl. IX, 1).

Heavy, lumpy squatting figures of this type were probably the most ancient of all Sumerian statues. The only other examples besides the Dada-Ilum from Ur [1] are the Lupad statue from Lagash, in the Louvre, which is apparently cross-legged,[2] and the unnamed and very clumsy figure at Copenhagen (recently acquired and published by the Ny-Carlsberg Glyptotek),[3] which closely resembles 114207, but is not so good though more complete: it is also possibly a little later in date as the dress is more developed, showing an elaborate fringe to the garment, which is spread over the knees, whereas in the al-'Ubaid figure there is hardly any visible indication of clothing, though a robe is to be assumed. A seated figure at Berlin, of a woman,[4] is apparently of much the same period, and probably marks the transition from squatting to seated representations of the human figure in the round.

2. The torso of a similar figure (No. 114206) in white limestone, inscribed on the back for Kur-lil (pp. 19, Pls. VIII, 6; XL; and Fig. 2), was found with No. 114207. No traces of the missing parts were discovered. Height 12 in. (30·5 cm.). Much battered, and a hole driven through it.

[1] Squatting statue of Dada-Ilum, discovered in 1924–5; Woolley, *Antiq. Journ.* v, Pl. XLVII, 2.

[2] De Sarzec, *Découv. en Chaldée*, Pl. 47, 2.

[3] *Tillæg til Billedtavler af Antike Kunstværker* (1915), XIV, 836 c.

[4] *Amtl. Ber. aus den Kgl. Kunstsamml.* Berlin, XXXVI, 190; Meissner, *Babylonien u. Assyrien*, Abb. 171.

II. *The Im-dugud* (*Imgig*) *Relief* (Brit. Mus., No. 114308) (Pls. v, 6–8 ; vi).

Copper on wood. Height 3½ ft. (1·07 m.) ; length 7 ft. 9½ in. (2·375 m.). As has already been said, this remarkable relief, the largest object found at al-'Ubaid, is unique in Sumerian art, though its subject is well known in other forms. It represents Im-dugud or Imgig, the lion-headed eagle of the Lagashite god Ningirsu, grasping two stags by their tails. The figures of the stags are almost in the round, their heads completely so, while their antlers (those of the head on the right restored after those on the left, of which one branch is entirely original, the other partly so) are so free from the background that the outer branch of each actually projected over and outside the end of the frame. The head of Imgig also must similarly have projected out in front and a little above the frame, as it is here restored, the original head (or heads ? see pp. 18, 23) having collapsed entirely before discovery. The body, wings, and tail are in high relief merely, the legs (and talons ?) practically in the round. The frame is rectangular, and is composed of ⊓-shaped lengths of copper, 4 in. (10·2 cm.) high by 6 in. (15·2 cm.) broad, nailed to wooden beams which have disappeared. As found it was best preserved at the left end (facing the spectator), worst at the other end and in the centre of the top, where it had been badly crushed down probably by some heavy weight that had fallen upon it from above at the time of the ruin of the building, since, if merely the weight and pressure of the superincumbent earth through the centuries were in question, the whole upper portion of the frame would have suffered, which was not the case. The nails are of the type usual in the case of all the copper figures from al-'Ubaid, averaging 2 in. (5·2 cm.) long, and with round heads averaging 1 in. (2·6 cm.) broad. Within the frame the group was fastened by nails and by three holdfasts of twisted lengths of copper bar ½ in. (1·3 cm.) thick, between the legs of the stags and beneath the tail of Imgig, to a wooden backing plated with copper that has badly oxydized. It fills the space in true heraldic style, the lion-head of Imgig forming the apex of the design raised somewhat above the frame, while the two stags balance one another on either side, and their antlers projecting beyond the sides of the frame carry out the same idea at the sides as the Imgig-head above. In order to fill the space between the wings of Imgig, the bodies of the stags are lengthened unnaturally.

The body and wings of Imgig as now reconstituted are almost wholly original ; only the head, as has been said, being a restoration, based upon other contemporary representations of the creature of Ningirsu and upon the artistic treatment of the original copper 'leopard'-heads also found (p. 18) and described below. As restored the head measures 9 in. (22·8 cm.) high by 6¾ in. (17·1 cm.) broad. The body is 17 in. (42·7 cm.) long by 13 in. (33·1 cm.) broad, and at its most prominent part stands 6 in. (15·2 cm.) above the background. The tail, splayed out from the base of the body, is 8½ in. (21·5 cm.) long and 15½ in. (39·5 cm.) broad at the end. It consists of rows of feathers disposed lengthways and overlapping, each averaging 9 in. (22·8 cm.) long and 2 in. (5·1 cm.) broad. The feathers of the body and wings are somewhat smaller ; those of the wings nearest the body being much smaller, av. 1½ in. (3·75 cm.) long. The wings are 26½ in. (67·4 cm.) long from tip to root and 14½ in. (37 cm.) broad at their broadest. The legs and talons were roughly formed of copper hammered into shape over wood, but when found were with the tails of the stags little more than a mass of clay stained green by oxydization of the copper that had disappeared. They are restored, but not with certainty, in accordance with the photographs taken at the time of

discovery (Pl. v, 6–8); the original talons having been unrecognizable when the group was found. The legs were, however, undoubtedly fashioned and joined on to the body and to the bodies of the stags very clumsily, more or less as seen in the restoration.

The two stags are generally, except as to their heads, clumsy representations, owing chiefly to the exaggerated length of their bodies. Probably the designer modelled his Imgig first and constructed his frame, and then had to accommodate the stags to the shape of the space available for them. They measure 27 in. (68·7 cm.) long and 8 in. (20·3 cm.) broad, the legs being 9 in. (22·8 cm.) long. The bodies are made of copper plates clumsily bent over into shape round a wooden *âme*, and fastened to it by large nails along the back. The legs are made in the same way. The hooves are restored. The short tails cannot now be distinguished from the legs of Imgig, and were apparently originally made in one piece with and hardly distinguishable from them. The necks are clumsy, and are 7 in. (17·7 cm.) long and 5 in. (12·8 cm.) thick; but the heads were in both cases excellently modelled, that of the left stag (facing), which is completely preserved, especially so. The antlers of the left-hand stag, of which the left branch is perfect, the other having been broken off above the bez-tine, are of ten points. They stand 10 in. (25·4 cm.) above the head, are 15 in. (38·1 cm.) long, and when complete measured 27 in. (68·7 cm.) across. They are made of hammered copper bar of square section, ½ in. (1·3 cm.) in diameter, and each branch is brazed on to that from which it rises. They were fixed into the head by means of lead poured into the root holes. This lead had in both cases oxydized and burst the heads open, but the left-hand head was but slightly damaged, and very little work was needed to put it into complete order. On this account the head of the right stag, which was badly burst and smashed when found and only held together by the hard mud, and when carefully picked out of this proved to be so oxydized that it collapsed, has been restored in general agreement with the other, as have also its antlers, of which only a small portion existed and that badly bent and broken.

The heads of the stags are so good as a piece of modelling that the species of deer represented can be with probability identified as the Oriental Red Deer or *maral* (*Cervus elaphus maral*). The identification is due to Mr. J. G. Dollman of the British Museum (Natural History).[1] Its spread of antlers has, however, been the subject of a certain artistic exaggeration. The perfect head measures 7¼ in. (18·4 cm.) in length, and the other was roughly of the same dimensions. The treatment of the eye with its many superciliary folds, typical of Sumerian art, is characteristic of all the animal heads found at al-'Ubaid. The question as to the method of manufacture of the two deer-heads, whether they were hammered or cast (more probably the former), will be discussed in connexion with the lion-heads below.

III. *The Copper Figures and Heads.*

1. The Bulls. Two complete copper figures, and one fragmentary figure, standing on copper-sheathed wooden pedestals, of bulls were found, one of which (J on the plan, Pl. II; Pl. IV, 2–4) collapsed almost immediately after it had been photographed. Its metal was simply a film of soft oxide. Only

[1] Mr. Dollman's opinion is as follows: 'The antlers of these specimens may be regarded as representing an idealized type of Eastern Red Deer antler. This deer, *Cervus elaphus maral*, is not found south of Northern Persia and Asia Minor, the typical locality of this race being the Caspian Provinces of Persia. The number of tines is usually 8, but sometimes 10 or 12 are developed. It is an Eastern race of the European Red Deer or Stag. The antlers of these models show no definite sign of palmation. The Fallow Deer, a species of which is found in Mesopotamia, differs from these bronzes in the points being less developed and the blade of the antler palmated. I think, therefore, that we may conclude that they represent the Maral or Eastern Red Deer.' It is possible enough that the Maral ranged as far south as Babylonia in Sumerian days.

part of its head was saved (B. M., No. 114310). Of the other bull, L (B. M., No. 114311), enough has survived the passage home to enable us, I hope, to put it together later, on the base of its wooden *âme*, remains of which have been preserved. Meanwhile the photograph (Pl. IV, 5) will suffice to show its appearance. The fragments of the third bull (K) cannot be put together again. Each bull stood about 2 ft. $2\frac{1}{2}$ in. (66 cm.) high and measured about 2 ft. 4 in. (69·8 cm.) in length. The pedestals were about 4–5 in. (10·2–12·7 cm.) high. The horns of No. 114311 were on the head when it was excavated, but they collapsed into green powder at once. Of No. 114310, no horns were visible at the time of excavation, or were found later. The style of these bulls, as will be seen from the photographs, is much like that of the bulls from the other side of the ramp which Mr. Woolley succeeded in bringing back intact (Pls. XXVII, XXVIII). The copper sheets of which they are made are hammered out and secured with nails (see p. 84), as in the case of the deer in the Imgig relief, but the effect is less wooden than in their case, and the metal seems to flow in more natural and more rounded contours, so as to give almost the effect of casting.

The isolated bull's head, No. 114309, of which only one horn was ever found, is otherwise well preserved. It measures $7\frac{1}{2}$ in. (20·2 cm.) long by $5\frac{1}{2}$ in. (13·6 cm.) broad at the back. The horn is $4\frac{1}{2}$ in. (11·05 cm.) in length. It has a bitumen core, as probably had the head, though this has disappeared. The spread of the horns would be 9 in. (22·8 cm.). It is a very fine example of Sumerian art: in fact one of the finest known ancient representations of a bull's head. The characteristic heavy and folded animal eyelid of Sumerian art is well shown in it (see p. 16).

Two small copper horns (Nos. 115497, 118359; Pl. V, 1) from smaller figures of bulls that have disappeared—unless one was the small figure (K), of which only the lower parts were found (p. 16)—measuring $2\frac{1}{2}$ in. (6·3 cm.) long. They do not both belong to the same head, apparently.

The golden bull's horn (114323; Pl. V, 4) is made of pure soft gold, and is lined within with bitumen. This bitumen was obviously laid on a wooden core which has rotted away: on it the gold was beaten out into shape. The companion horn was never found. It does not belong to the bull 114311, as it is too large, being of the proper size for a head of the same dimensions as 114309. It is $3\frac{1}{4}$ in. (7·9 cm.) long and 1 in. (2·6 cm.) broad at the base.

No relief figures of recumbent bulls like those found by Mr. Woolley (p. 86) were discovered, but a single head (No. 118015) of a similar figure was found (pp. 19, 35; Pl. VII, 2–4), measuring $4\frac{3}{4}$ by $5\frac{3}{4}$ in. (12·1 by 14·6 cm.), with a crescent in relief on its forehead, and the copper pin preserved by which it was fastened to the body.

2. The Lion-Heads. The four large lion-heads (Nos. 114315–114318) were found in a line in front of the bulls and fallen columns of copper and mosaic-work (see pp. 15, 17). The first two (P, Q, on plan, Pl. II), starting from the eastern end of the row (on the right facing the spectator), had the foreparts of bodies attached: that is to say they were *protomae* rather than heads. We may compare the young calves coming out of the byre in the

frieze of the ' milking-scene ' (p. 91 ff.). The other two (R, S) showed no sign of any kind of body, but of course this may have disappeared in both their cases, as a result of oxydization. Their material is copper, upon a core or base of bitumen mixed with clay and straw in the case of the heads, and probably of wood and clay in that of the ' bodies '. The metal of all four was badly broken, and in the case of three seriously oxydized also, when found. The war-conditions of their transport have naturally not improved their state. But in the case of at least one head (P, = 114315) complete restoration of the copper ' mask ' will be possible, though the restoration of its ' body ' is doubtful. Of three (P, R, S), the bitumen base-heads are complete, one (R) with considerable restoration : the fourth (Q) was fragmentary when found, and it has been found impossible to put it together. Its ' body ' is also very fragmentary. (Pls. VIII, 1–4 ; X.)

The modelling of the heads is vigorous, and details of the ruff and nostrils are emphasized by the graver. The metal of the ' bodies ' was roughly shaped and graved to reproduce the mane. Of these ' bodies ' or rather foreparts little more than the shoulders ever existed, apparently. There were but rudimentary fore-legs. The foreparts were joined to the heads by a wooden balk that fitted into a square hole in the bitumen of the head (Pl. XI, 1). The stone and shell eyes, teeth, and tongues have been preserved almost completely in one or two cases. As described on p. 18, the eyes have pupils of hard red sandstone or jasper, fastened to the bitumen backing by copper wire passing either through a transverse hole or through a V-shaped incision in the pupil, white shell eyeballs very accurately fitted to the pupils, and surrounded by blue schist lids cut in one piece. The tongue is a piece of red jasper, usually without fastening, thrust into a hole in the mouth of the bitumen head. The teeth consist of two shell plates with cross-hatching representing the molars on either side, a triangular piece beneath the nose, and sets of separate incisors, each fastened by its separate piece of copper wire (Pl. XII, 1–2).

'P' (114315) measures 12 in. (30·5 cm.) from back to front and the same across. It stands 12 in. (30·5 cm.) high, and is therefore, like the other three, practically lifesize. The eyes measure $2\frac{1}{2}$ in. (6·4 cm.) in length by 2 in. (6·1 cm.) in width : the tongue (or what is visible of it) $1\frac{1}{4}$in. (3·3 cm.) long and $1\frac{5}{16}$ in. (3·5 cm.) broad. Part of a shell plate indicating the molars, $1\frac{3}{4}$ in. by $1\frac{1}{2}$ in. (4·5 cm. by 3·8 cm.), and one large incisor $1\frac{1}{4}$ in. (3·3 cm.) ; other teeth wanting (Pl. X, 1, 2).

'R' (114317). Measurement : 14 in. (35·7 cm.) sq. The bitumen head is much restored, having fallen to pieces owing to the disintegration of the mask, which was when found little more than a film of soft oxide. One ear was broken off when found. The upper lid of the right eye and both lids of the left eye are restored. The tongue was missing, but of the teeth were preserved four incisors (av. 1 in. ; 2·6 cm.) (Pl. X, 5, 6).

'S' (114318). Measurement : 14 in. (35·7 cm.) sq. Part of the muzzle of the bitumen head restored and part of the lids of the left eye missing. Both ears and the tongue present, also the teeth. The eyes measure $2\frac{3}{4}$ in. (6·5 cm.) by 2 in. (6·1 cm.), the tongue, which is easily removable, and has no fastening, $2\frac{1}{2}$ in. by $1\frac{1}{4}$ in. (6·4 cm. by 3·3 cm.) and 2 in. by 1 in. (6·1 cm. by 2·6 cm.) respectively : central triangle 1 in. ; four incisors averaging 1 in. (2·6 cm.). There is also an irregular four-sided piece of shell marked to indicate molars : $\frac{3}{8}$ in. (2·35 cm.). Of the copper mask, fragments were present which it may be found possible to restore. This head was originally made with very splayed nostrils, and its aspect of great broadness of muzzle is intensified by the asymmetry of the upper part of the face owing to pressure, which is specially noticeable in the case of the right eye, which now appears in quite a different plane from the left eye (Pl. X, 3, 4).

Of the two smaller lion-heads (T, U ; Nos. 114314, 117918), which were found close together just west of the larger heads, whereas No. 114314 has absolutely nothing of the copper mask left, the only trace of it being a faint smudge of green oxide on the nose of the bitumen head, the bronze portion of 117918 is very well preserved, and can be put together without difficulty. It shows the ruff round the neck, and the whiskers in front of the ears, accentuated by the graver's tool, very completely. At the back of 117918 the holes in the edge of the bronze mask for the nails that attached it to the wooden *âme* are visible. The treatment of the hair by the metal-worker is interesting. That of the mane and ruff is indicated by alternate large and small locks, beginning just below the level of the ears. The longer hair of the mane is summarily represented in large ribbed masses falling this way and that (Pl. XI, 2, 3–5).

Both measure about 11 in. sq. (28 cm.). The ears of 117918 are nearly complete. One eye is complete, the lids of the other have been slightly restored: $\frac{5}{8}$ by $1\frac{1}{4}$ in. (1·6 cm. by 3·3 cm.); and the tongue, $1\frac{3}{4}$ in. (4·5 cm.) long. One plate of the molar teeth is preserved, the other missing. No. 114314 has only one eye, though that is complete. The other appears to have been forced out by the heavy pressure that has crushed down one side of the bitumen head (see p. 34). No. 117918 has also been crushed out of shape, so that the left ear is now considerably higher than the right.

3. The 'Leopard'-Heads (Nos. 114312, 114313). (Pl. XI, 6–8.) These two heads of lions, leopards, or cats, which Mr. Woolley has suggested may really belong to the Imgig-relief, have in both cases a great deal of the original copper mask left. In both it is the covering of the lower part of the muzzle and the ears only that is missing : in the case of 114313 the metal covering of the left ear is half preserved. These differ from the larger heads in having no separate eyes, tongues, and teeth. The eyes are simply indicated by the graver, like the whiskers and ruff or mane, which is shown in a conventionalized form without the naturalism of the lion-heads. The ears stand erect, as do always those of the head of Imgig represented elsewhere, looking more like those of a leopard or cat than a lion, though Imgig was supposed to be lion-headed.

Both measure 8 in. (20·3 cm.) in length by 6 in. (15·2 cm.) high ; $7\frac{1}{4}$ in. (18·5 cm.) to the tip of the ears. In neither case was any trace of a body visible. But each has at the back a hole in the bitumen head for the tenon joining it to the body which has disappeared. This is not square as in the case of the lion-heads, but oblong, measuring $2\frac{1}{2}$ to 3 in. (6·4 cm. to 7·6 cm.) long by 1 to $1\frac{1}{4}$ in. (2·6 to 3·3 cm.) broad. It shows no trace in either case of any nail driven through the tenon from above, such as is notable in the smaller bull's heads, see Pl. VII, 2–4 ; and pp. 30, 86.

No. 114312 (V) was found as it had fallen, lying above and athwart the large lion Q. No. 114313 (W) had fallen beyond the third head and was found a few inches lower than the other, about seven feet in front of and to the right of the Imgig-relief.

4. The Birds' Heads. Four of these were found (Nos. 114319–22) ; X, Pl. II ; V, 5. They are of far ruder workmanship than the animal heads, consisting indeed merely of copper hammered and twisted in the roughest manner into a vague semblance of the heads of birds, and kept in position by means of nails, so that in all probability they originally had rude wooden cores

over which they were hammered into their crude shape. There are no bodies.

No. 114319 is 3½ in. (8·9 cm.) in height; No. 114320, 2¾ in. (7 cm.); Nos. 114321 and 114322, 2½ in. (6·4 cm.).

These are the metal figures found. They are of great importance in the history of art: possibly they were among the first attempts, at any rate in Babylonia, to reproduce animals in metal on a large scale. Their inequality is very noticeable. This is a trait symptomatic of a young undeveloped art. Side by side we find the really very fine lion-heads and the crude heads of birds. Had we whatever existed of the bodies of the lions in a complete condition, we should possibly find that they detracted a good deal from the effect of the heads. The excellence of the heads of the stags in the Imgig relief hardly prepares us for the badness of their bodies, whose exaggerated length makes their legs, otherwise more or less correct in size, appear stumpy. The bodies of the two bulls found in 1919 were also too long. But those of Mr. Woolley's two bulls (Pls. XXVII, XXVIII) are far more correct in their proportions to the heads, which also are admirable. The conception of the figure of Imgig is excellent, but what can be cruder or clumsier than his legs grasping the tails of the stags? In the lion-heads we see in the treatment of the manes and ruffs hardly what might be called naturalism, but at any rate not a strong conventionalization such as we see in the two 'leopard'-heads. The representation of the whiskers by long lines and punctuated dots is a convention followed on both leopard and lion-heads. There is a regularity in the way in which each animal is represented, but each head differs from the other in the manner in which the work is executed, there evidently being no desire to make one absolutely identical with another. The methods by which the animals are put together and their parts fitted and fastened while generally the same, vary individually. The lion-heads were made almost like copper helmets that were put on to the bodies with heads (of bitumen and clay) inside them.[1] Their curious eyes, teeth, and tongues doubtless gave a great air of lively ferocity to them, and pleased the Sumerians, but except in so far as the construction of the eyes is interesting, they do not appeal to us.[2] The combined technique of metal, stone, and shell is very curious, and characteristically Sumerian. It would not have appealed to the Egyptians, who preserved 'the unities'.

A question of great interest in connexion with them is whether the heads (with of course the exception of those of the birds) were hammered, like the bodies and legs, or cast. There is no doubt that in all cases the bodies and legs were hammered, and were composed simply of copper plates bent over and hammered more or less roughly into the required shape over a wooden shape or *âme* (of cedar)[3] and held by long nails. These plates frequently

[1] The 'clay within, bronze without' technique was evidently usual in Babylonia, as the Apocryphal account of the statue of Bel (see p. 18, n. 1) shows.

[2] It should of course be remembered that the present appearance of the bitumen-heads with the spectacle-like effect of the eyes is due to the absence of the metal masks and was not intended. If it is possible to reconstitute at least the copper of the first head ('P'; 114315), the eyes will be placed in it in order to show the real effect.

[3] Identified by the Botanical Dept. of the British Museum (Natural History), from a specimen belonging to one of the bulls, as cedar of Lebanon.

overlapped, sometimes clumsily, and the nails were often driven in a very cobbling fashion. The question is whether the heads of the two stags and those of the lions and 'leopards' were not cast. In the opinion of some practical metal-workers they were, in spite of the fact that it is far more difficult to cast copper than bronze; which, however, accounts for the apparent collapse of some of the heads in the casting: the technique was new and unmastered as yet. According to this view the bitumen was rammed into the heads when hot with the idea of strengthening them. In each lion-head there is a rectangular space at the back, now filled with clay, which was presumably intended to take a wooden balk, a tenon or neck, projecting from the ' body '. The bitumen will, on this theory, have been forced into the copper head from the back when the wooden neck was in position and between it and the mask. The possibility that the heads were cast would seem to be shown by the fact that the metal has sagged in places, so that the bitumen ' casts ' are somewhat misshapen, at any rate in the case of the large heads. This sagging is much more strongly marked in the case of the fifth lion-head, smaller than the others (No. 114314). This head is so misshapen on one side that the copper might fairly be regarded as having collapsed in the casting. And the same thing is noticeable in the case of one of the two leopard or cat-heads (No. 114313), in both of which the copper is well preserved. In the head in question one side of the muzzle has cracked and has sagged so heavily that the animal looks as if it were suffering from severe toothache.

It has been suggested to me, however, that the sagging or deformation of the heads is merely due to the pressure of the superincumbent earth. But if this were the cause the bitumen interior of the heads would not sag or bend in also: it would have broken and crumbled, surely. On the contrary, it is whole and bears all the appearance of having taken its present form when hot, i. e. when poured into the cast heads. Each bitumen head appears to be a complete cast of the copper mask belonging to it, so far as can be judged from the two more or less complete leopard-masks.

But if it is considered that the difficulties of casting copper heads of this kind would be too great for us to assume it, and that steady pressure throughout the centuries would be enough to account for the sagging and cracking of the copper heads and the exactly parallel sagging of their bitumen interiors, then we must suppose that the heads were hammered like their bodies, but with far greater care and on a bitumen base, not a rough wooden block, in fact with the same technique as that of a modern metal-worker who beats in his metal over a base of pitch. The bitumen heads have of course taken the exact form of the copper heads, but are not their casts. It has been suggested that a thin sheet of copper, not more than $\frac{1}{16}$ inch thick, or less, was first moulded over the bitumen head and beaten in, and then another sheet was hammered over the first, reproducing the features of the bitumen head. But there is not much evidence that the plates of the heads were composed of two skins of metal in this manner, and it is probable that the accurate reproduction in the metal masks of the characteristics of the bitumen bases was largely due to the later work of the graver.

These are two different theories, each of which may have its adherents. Personally I am inclined now to accept in the case of most of the heads the theory of hammering rather than that of casting : the metal is, I think, too thin in the lion and leopard's heads, the bull-heads, and possibly the two stags of the Imgig relief (though these are less certain, to my mind) to admit of the casting theory being correct. But that casting was actually employed seems evident from the heads of the small recumbent bulls in high relief found by Mr. Woolley (p. 86, Pls. xxix–xxx) and the isolated head found by me (No. 118015 ; Pl. vii, 2–4). The metal of these is so solid and heavy that it is difficult to believe that it is not cast ; and in the case of No. 118015 the fact seems to be proved by the existence running down the centre of the muzzle from the forehead to the tip of the nose of the ridge (unremoved) made by the junction of the two halves of the mould. This ridge is also visible on the chin, where, however, it is not exactly in the centre, but is slightly deflected. It is clearly traceable down to the edge of the neck. Another point is the technique of the ears, which are in one piece with the rest of the head ; this would only be possible in a casting. The ears of the standing bulls were, on the contrary, made of obviously hammered metal, and nailed on separately. Unluckily even 118015 is too much oxydized for the point to be decided by analysis.

As has been said, the circumstances and description of this find are strongly reminiscent of that of the deposit of Hierakōnpolis, and there are one or two actual comparisons that can be made between the objects found in both cases.

With regard to the metal, there is in both cases the technique of hammered plates secured by nails to a wooden core, which we find in the case of the Pepi statues in Egypt. It would be interesting, however, to have the opinion of those best qualified to judge as to whether the face of Pepi's son at any rate is not cast.

The workmanship of the Egyptian figures is finer. The bodies of the bulls and stags from al-'Ubaid are crude and clumsy, and give the impression of greater antiquity. Did we possess the Third Dynasty copper statue *Ḳa'y-Ḥa'seḫemui*, ' High is Kha'sekhemui ', which, we know from the Palermo Stone, was made in the reign of Kha'sekhemui (*c.* 3200 B. C.?), and gave the official name to the year in which it was made, we should have been able to draw a truer parallel between Egyptian and Sumerian copper works of art in the fourth millennium B. C., and it would have been interesting to see whether the Egyptian figure presented the crudities we see in the early Sumerian metalwork from al-'Ubaid (*c.* 3100 B. C.), but not visible in the fine technique of the Sixth Dynasty Pepi statues (*c.* 2600 B. C. ?). A comparison between the Sumerian figures and the Pepi statues is vitiated to some extent if we regard the latter as made of bronze instead of copper. For one thing, the casting of the heads would be much easier in bronze, and so the heads of the Egyptian figures, if cast, would be far less of an achievement than were the al-'Ubaid lion-heads, if they were cast. When discovered the Egyptian figures were naturally assumed to be copper,[1] and this assumption was ' confirmed by an analysis made by Dr. Gladstone, F.R.S., who found the

[1] Quibell and Greene, *Hierakonpolis*, ii, p. 27.

specimens submitted to him, which were much corroded, to be copper, with a possible trace of tin in the metallic core and evidence of only a very small amount of tin in the crust '.[1] This would not make the metal bronze. The Italian chemist Mosso was responsible [2] for the analysis that affirms that the figures are of bronze. I have always doubted their being so. Not that any reflexion is cast upon Dr. Mosso's analysis: the only question one would like to have resolved is whether the piece of copper which the late M. Barsanti gave to the Italian savant to analyse was actually part of one of the figures, or whether it was merely a chance fragment which was *believed* by him to have belonged to one of them, without real proof; a doubt that has also been expressed (I believe at my suggestion) by Prof. Sebelien.[3] Bronze figures of this size in the time of the Sixth Dynasty would be highly remarkable, as one does not expect such a use of the alloyed metal in a country which hardly adopted bronze even for weapons until well on into the next age, the time of the Twelfth Dynasty, and can hardly be said to have emerged from the ' Copper Age ' till near the end of the Middle Kingdom. And now the matter has been settled by Dr. Desch's analysis of a veritable fragment of one of the figures, submitted to him by Mr. Edgar, which proves the material of the Hierakōnpolis statues to be, as I expected, copper. Barsanti's fragment which Mosso analysed had nothing whatever to do with the statues. Here is the analysis of the real fragment, kindly communicated to me by Mr. G. A. Garfitt, who on behalf of Mr. H. L. Peake and the members of the ' Sumer Bronze Research Committee ' of the British Association permits me to publish it here :

Copper	74·03 %
Iron	0·56
Nickel	0·80
Sulphur	0·01
Silica	2·50
Alumina	0·43

Other metals were absent. There is no tin at all. The difference between the total and 100 per cent. would be made up by oxygen and carbon dioxide, as the fragments were almost completely oxydized. ' The interesting features are the low sulphur and the high nickel content, the last being a valuable clue to the ores.' It is indeed to be hoped that this clue will be followed up successfully.

The analysis of the copper objects from al-'Ubaid shows traces of nickel, but not in such quantity. The following analysis (also communicated by

[1] Lucas, *Ancient Egyptian Materials* (1926), p. 76. Dr. Gladstone's analysis is in Petrie, *Dendereh*, p. 61 : copper 78·3 %; alumina 15 %; carbonate of lime 2·5 %; insoluble residue 0·9 %; oxygen, &c. 16·3 %. ' There was but a doubtful indication of tin in the metallic core, but the presence of some black oxide of tin (cassiterite) in the surrounding crust was less doubtful.'

[2] *Dawn of Mediterranean Civilization*, p. 56. He found the copper to be 58·50, tin to be 6·57 per cent., copper carbonate 34·00 per cent. (see also *Cairo Museum Guide*, 1910, p. 73). The so-called ' sceptre of Pepi I ' in the British Museum (No. 5495) mentioned by Mosso, *loc. cit.*, as analysed by Berthelot and found to be pure copper (*Introd. à la Chimie des Anciens*, 1889), is of course not a ' sceptre ' at all but a seal-cylinder (case A, 4th Egyptian Room).

[3] ' Early Copper and its Alloys ': *Ancient Egypt*, i (1924), p. 7.

Mr. Garfitt with permission to publish it here) is by Dr. Desch of one of the nails and several fragments from one of the two bulls found in 1919:

Copper	93·70%
Tin	0·15
Iron	0·24
Nickel	0·22
Arsenic	0·02
Sulphur	0·11
Silica	0·002

As in the Egyptian example, nickel is present, whereas in most specimens of Syrian and Anatolian copper objects it is totally absent. However, the percentage of nickel is nothing like so great as in the Egyptian copper. The Sumerian metal is practically pure copper.

Several other analyses, made by Dr. Alexander Scott, Professor Bannister, and Dr. Plenderleith, from various examples of copper from al-'Ubaid, give the same result.

The following copy of analysis of fragments from the lions has been received from Professor Bannister for the 'Sumer Copper Committee' and has been communicated to me by Mr. Garfitt:

Copper	69·95%
Iron	0·59
Nickel	0·35
Tin	0·34
Zinc	nil
Lead	trace
Sulphur	0·19
Silica	1·40
Silver	0·09
Gold	trace

Another analysis of copper fragments from al-'Ubaid by Professor Bannister is as follows:

Copper	63·69%
Iron	1·14
Nickel	0·16
Tin	2·81
Silica	4·42
Silver	0·0056
Gold	0·0004

In this specimen there is an appreciable amount of tin, but not so much as to cause us to regard it as a real artificial bronze. It is evidently fortuitous.

Dr. Alexander Scott, F.R.S., director of the British Museum Research Laboratory, has kindly examined some copper shavings from the antlers of one of the stags' heads in the Imgig relief, which are but slightly oxydized, with the result that they are found to consist of very pure copper, relatively speaking:

Analysis showing	98·7%	of copper
and	0·3	of iron with a trace of nickel
	99·0	
(loss) grease and oxide, &c.	1·0	
	100·0	

'The lead', he writes, 'from the setting of the base of the antlers was pure lead, analysis indicating at least 99·8 per cent., and as the piece may not have been absolutely clean, no higher result could have been expected. No silver or copper could be detected.'

The copper from a small 'ingot' found at al-'Ubaid, analysed by Dr. Scott, contained lead in notable amount, analytical results giving:

Copper	95·0%
Lead	4·4
Silver	trace

'Specific gravity was low, being for a carefully cleaned piece which was analysed, 8·16 per cent. For a large piece containing oxide of copper coating, &c., it came to 7·88 per cent. Pure copper should be 8·92 per cent.

The copper from a small nail which was reduced in hydrogen contained a notable quantity of silver with only a trace of lead.

None of the varieties of copper could be considered in any way to approximate to either a "bronze" or a "brass", all being really wonderfully pure copper.'[1]

The hammered copper plates from the foreparts of the lions (now thoroughly oxydized with a slight covering of green carbonate) seem to have been of exceptional purity, being free from both silver and lead. Dr. H. J. Plenderleith, Dr. Scott's assistant in the British Museum Laboratory, has made the following analysis of copper from one of these lion-bodies.

'Several specimens were examined. Some of these were from a nail consisting of fairly sound metal with no green salts of corrosion upon it. The remainder were from the metal body-casing of the lion, and these latter contained a considerable amount of basic copper carbonate.

Nail	
Copper	95·88–93·21%
Silica	0·28–3·24
Arsenic	1·60
Metal Body-casing	
Copper	72·44–74·04%
Silica	0·01–0·02
Arsenious Oxide	0·75

No tin or antimony could be detected. The metal of the nail was permeated by a porous network of cuprous oxide. No free metal was left in the body-casing examined, while the presence of carbonates among the oxides of which it is composed accounts for the low values obtained for copper in this case. The metal in all cases is notably hard, due to the presence of cuprous oxide together with the arsenious oxide. It seems highly probable that the arsenic is present as an impurity introduced from the ore from which the copper was obtained, and that the specimens analysed are of the same copper alloy, the arsenic having been in some measure washed out of the more corroded and porous specimens.'

Dr. Scott adds the following analysis of bituminous clay from inside the

[1] Only slight traces of nickel seem to have been found. In an analysis by Professor Bannister of four ores from Asia Minor received through Mr. Garfitt no nickel whatever was present, silver was appreciable, of lead a trace, gold either absent or barely traceable.

copper plated figures. The clay was of a very friable texture with remains of straw or similar material worked through it.

Water lost at 100° C.	5·5 %
„ 215° C.	4·3
Further loss at low red heat	12·3
„ on complete burning	29·5
Total water and organic matter	51·6
Clay remaining	48·4 { 31·8 soluble dilute hydrochloric acid; 16·6 insoluble „ „

Remaining clay consisted:

Calcium carbonate and a little sulphate	22·4
Alumina	9·2
Magnesia	0·2
Soluble in dilute hydrochloric acid	31·8
and silica (sand, &c.)	11·7
Alumina	4·2
Lime, &c.	0·7
Insoluble in dilute hydrochloric acid	16·6

Of the organic matter in the clay—

14·2 % was dissolved out by benzole (90 %)
and 13·8 was dissolved out by pyridine
28·0

' From the residue left by the benzole, indicating that the original clay had contained about one-third of its weight of solid asphalt, of which about one-half remained as such and the other half had perished owing to atmospheric and other influences. The clay as found was not softened by heat so as to be in any degree plastic and mouldable. By means of a strong solution of asphalt in benzole it is easy to impregnate the clay with an amount of asphalt equal to that which has perished so as to give it abundant strength to be handled without risk of fracture.'

It may be added that the analyses made by Dr. Scott and his assistant Mr. E. C. Padgham of copper nails and a dagger (?) from Shahrain, found by Mr. R. C. Thompson, show metal of the same purity as that from al-'Ubaid, without any trace of tin, antimony, or arsenic.[1]

We may therefore assume that bronze was unknown to the Sumerians *c.* 3000 B.C.

IV. *Other Metal Objects.*

1. (5307) Part of a rounded bar of elephant ivory cased in copper. Largest fragment 2 in. (5·2 cm.) high ; D. $1\frac{7}{8}$ in. (4·8 cm.). Probably the copper-shod foot of the ivory leg of a chair. The technique is interesting. The material was identified as ivory by Mr. A. T. Holwood, M.Sc., of the British Museum (Natural History).

2. Copper-sheathed Beams. Many fragments. Two more or less complete, about 8 ft. (3·67 m.) long by 9 in. (22·9 cm.) diameter ; others thinner.

[1] *Archaeologia*, lxx, p. 144.

V. *The Copper and Mosaic Columns* (see Pls. II, IV).

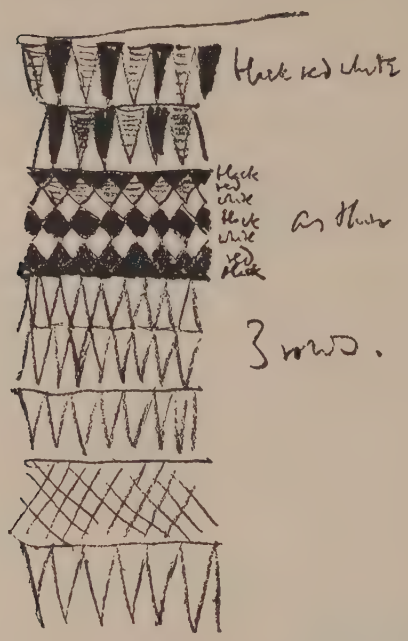


FIG. 3. Sketch of arrangement of tesserae on mosaic columns.

1. Copper Columns. Three lower portions (Pl. II. F–H). Original height undetermined. Average actual height 3 ft. (91 cm.). Diameter 8 to 9 in. (20·4 to 2·29 cm.). (Pl. IV, 2, 5–6.)

2. Mosaic Columns. Five lower portions (Pl. II. A–E). Original height undetermined. Average actual height 3 ft. (91 cm.). Diameter: A, B, 9 in., C, 10 in. (25·4 cm.), D, E, 11–12 in. (28·30 cm.), approximately. (Pl. IV, 1–3, 6.)

The method of making them is described by Mr. Woolley in Chapter V;[1] they are made of palm trunks covered with bitumen in which the tesserae are fastened by copper wire as described on pp. 17, 100. The tesserae are of mother-of-pearl, red limestone, and black bituminous limestone. They are square and triangular, the former of regular sizes, measuring about 1 to 1⅛ or ⅝ to ⅞ in., the latter of two shapes, one long, the other equilateral, respectively about 1⅞ to 2¾ in. long and about ½ in. long. The arrangement is usually as in Fig. 3, a facsimile of my sketch made in the field, but this is by no means constant; sometimes two blacks come together, and so on.

VI. *The Pottery Flowers.*

Twelve pottery flowers and three portions of stalks were found with the pillars and bulls, of which only one (No. 114201, Pl. XII, 5) had the stalk perfect, while the flower itself was imperfect and wanted the thick bitumen base (or bed) of the petals. Only one (No. 114200) had the bitumen bed in position and in this case the stalk was entirely missing. In others (Nos. 114202–5) the flower was complete with the exception of the bitumen. No. 114205 had a corolla of bitumen, and No. 114200 of white stone; but in all the others the corolla was of red sandstone, and the petals of red, white, and black stone, usually eight in number, and usually disposed crosswise with two black and two red petals opposed and four white filling up the angles. Another arrangement of seven petals—white, red and black, white, red, white, black—occurs, but eight is the usual number, corresponding to the eight angles of the pottery calyx. No. 114203 has only red and white petals. These petals were fastened on, as has been said, p. 17, by copper wire through a V-shaped perforation (the corolla by a transverse perforation) passed through the bitumen bed on which they lay and then through holes in the corre-

[1] For this decorative technique (though not, of course, for any similarity of the objects), compare the stands from Musyān. (*Mém. Délégation en Perse*, VIII, p. 79.) See p. 17.

sponding projection of the calyx, and twisted round the pottery stalk, being finally secured to the two curious spurs which project opposite one another from the stalk not far from its base, and appear to have been devised for this purpose. The wire from the corolla emerged from the stalk by a hole an inch or less below the calyx.

On the *raison d'être* of these curious flower or rosette-cones, of which a large number were found by Mr. Woolley and in a more perfect condition than these, see p. 81. I do not agree with Mr. Woolley's explanation of their use (*loc. cit.*), as I regard them as simply rosette-cones for insertion in walls as decoration, the twisted copper wire being merely the fastening of the petals (see p. 50).

No. 114201 measures 10¼ in. (26·7 cm.) high; the flower 4¾ in. (12·1 cm.) in diameter; No. 114200 (imperfect) 3¾ in. (9·6 cm.) in diameter; Nos. 114202–5 respectively 5 in. (12·7 cm.), 4½ in., 4 in., 4 in. in diameter. The others (Nos. 117944–9) vary from 4¼ in. to 4¾ in. in diameter.

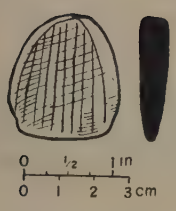


Fig. 4. Tongue-shaped object (2511).

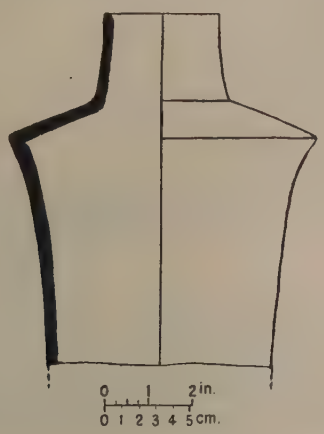


Fig. 5. Vase. No. 115450.

Fig. 6. Vase. No. 115451.

VII. *Pottery Objects found with the Copper Animals, &c.*

1. Drain pipes. Drab ware. Cylindrical.

Found mixed up with the copper-sheathed beams, pipes (?), and other objects above the bulls and lions. They are marked with green oxydization from the copper (Pl. XII, 6).

(2484) (No. 115449), imperfect, measures 12 in. (30·5 cm.) in length by 5¾ in. (14·6 cm.) in diameter. Two other fragments found (2485, 2486).

2. (2511). A drab ware tongue-shaped object, one side striated (Fig. 4); 1⅜ in. (3·5 cm.). Possibly the detached tongue of an animal figure, made separately like the red limestone tongues of the lions.

3. Pots:

2492. (No. 115450.) Upper part of a thin pink ware pot of unusual form (Fig. 5). H. 8½ in. (21·6 cm.).

2494. (No. 115451.) Drab ware vase resembling the Egyptian *ḥes* ( ) type: neck knocked off (Fig. 6). H. 9¾ in. (24·8 cm.).

2495. Portion of a similar vase: pink ware.

2510, 2487–91. Fragments of drab ware pots.

2493. Pinkish-drab ware cup. (No. 117950); H. 2½ in. (6·5 cm.); D. 5 in. (12·7 cm.).

2496. (No. 117951.) A well-formed small vase of fine drab ware. H. 2¼ in. (5·4 cm.) (Pl. XII, 8).

2382–3. (Nos. 117972–3.) Two cups of drab ware, rather yellow. H. 1¼–1½ in. (3·3–3·8 cm.) (Pl. XII, 8).

2498. Foot of a bowl: very coarse drab ware.

2478–9. Two quoin-shaped bricks, 6½ in. (15·85 cm.) (Pl. XII, 4).

The above are Sumerian and presumably contemporary with the building and the copper animals. In addition to these, several fragments of prehistoric incised or painted pottery were also found. The presence of these is explained by the disturbance of older remains by the building of the temple.

A small whorl, or whorl-like bead (2516), and a fragment of a ' pencil ' cone (2517), were also found.

VIII. *Miscellaneous Objects found with the copper animals.*

1. The head of a duck in white limestone (No. 115448) from a frieze of ducks of the type found and described by Mr. Woolley (pp. 98–9). H. $2\frac{1}{2}$ in. (6·4 cm.). Pl. v, 5. Also two formless fragments of limestone animal figures of the same kind (see p. 111) from a frieze, $2\frac{1}{2}$ in. (6·4 cm.) and $1\frac{3}{8}$ in. (3·5 cm.) (5358–9). Not illustrated.

2. (2588.) Part of a mother-of-pearl oyster-shell (No. 114199), from which a portion has been cut away with a very sharp knife, evidently for the manufacture of shell plaques. It is interesting to find an actual specimen of the shell used. D. $3\frac{1}{2}$ in. (8·9 cm.) (Pl. xii, 9). Part of a bivalve (mussel) shell was also found (2589).

3. 28 fragments of stone vessels of various types (2544–72). Notable are Fig. 7 (2544), a fragment of a mortar in coarse limestone, D. $5\frac{1}{4}$ in. (11·3 cm.); (2552) a fragment of a trachyte bowl of unusual carinated outline (No. 115953 ; Fig. 8, *cf.* p. 48), 3 in. (7·7 cm.) by $1\frac{1}{2}$ in. (3·8 cm.) ; (2561) part of a limestone bowl (No. 117954), 7 in. (17·8 cm.) by $5\frac{1}{2}$ in. (14 cm.) ; (2557) base of a cylindrical vase of aragonite with slightly convex bottom (No. 117979) : D. $7\frac{1}{8}$ in. (18·1 cm.) ; fragment of a black bituminous limestone quern (2547) ; of a thick gypsum vessel (2545) ; of a black granite, flat platter with base-ring, D. $5\frac{1}{4}$ in. (13 cm.) : (2548 ; No. 115452), Fig. 9 ; of a bowl of a green chlorite-schist precisely like the ' potstone ' still used in India for making pots and bowls (2549) ; too shapeless to be drawn : its interest lies in its material. $4\frac{1}{2} \times 2$ in. (11·5 × 5·1 cm.).

The peculiar Indian (?) stone of 2549 (B. M. No. 118360) was identified by Mr. Campbell Smith of the British Museum (Natural History). This comparison is interesting, and possibly important in view of the recently discovered connexion between early Babylonia and India.

4. Plaques for inlay : fine white marble (2576 ; No. 115367), rectangular, with remains of copper wire in V-shaped incision ; 3 in. by $1\frac{3}{4}$ in. (7·7 cm. by 3·5 cm.) (Fig. 10) ; (2577 ; No. 117956) similar, but burnt ; $2\frac{1}{4}$ in. by $1\frac{3}{8}$ in. (5·7 cm. by 4·1 cm.) ; red limestone ; triangular (2575), 2 in. (5·2 cm.) : (2585 ; No. 117963), finger-shaped, with copper-wire fastening ; 2 in. by $\frac{1}{2}$ in. (5·2 cm. by 1·4 cm.) ; (2586, 2587) both broken ; white shell, finger-shaped (2580–4 ; Nos. 115453, 117959–62), $1\frac{1}{2}$ in. to $2\frac{1}{2}$ in. (3·8 cm. to 6·4 cm.) ; rectangular (2579 ; No. 117958) with remains of early copper wire, $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. (3·8 cm. by 1·35 cm.) (Fig. 11).

The ' finger-shaped ' plaques are of the same form as the teeth plates of the copper lions : whether these also represent the teeth of other lion-heads that have perished is very doubtful : the fact of the existence of plaques of similar shape in red limestone is against the probability. The bad preservation and evident subjection to fire of most of these objects (the latter certain in the case of three of the plaques) seems to point to the fact that the upper part of the building had been destroyed by fire when it was slighted.

5. Hammer-stones or grinders : ten (2533–42), mostly of chert ; 2539, quartz-porphyry. 2533–8, round (Pl. xiv, 6) ; rest roughly oblong. (2574) Part of a flat grey marble rubber.

6. (2543 ; No. 117964) fragment of a large pear-shaped mace-head of coarse marble : undecorated. $3\frac{3}{4}$ in. (9·6 cm.).

7. (2573 ; No. 117965) part of a bluish-white marble or calcite plinth or pedestal : well squared : $3\frac{3}{4}$ in. by $1\frac{3}{4}$ in. (9·6 cm. by 4·5 cm.).

8. Miscellaneous flint flakes and cores (2519–32).

§ 2. OTHER EXCAVATED OBJECTS

The following objects, chiefly pottery, were found in digging a few paces east of the east corner of the platform, in order to make a level way and abolish

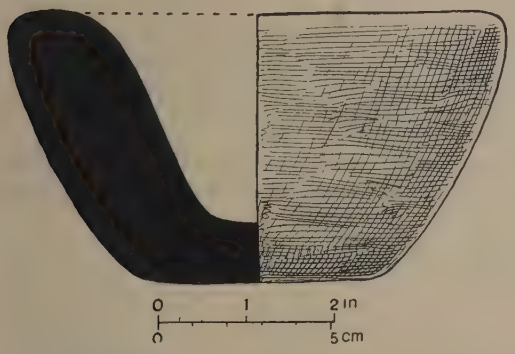


FIG. 7. Fragment of a limestone mortar (2544).

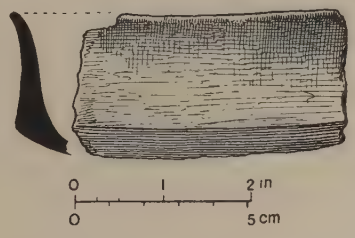


FIG. 8. Fragment of trachyte carinated bowl. No. 115953.

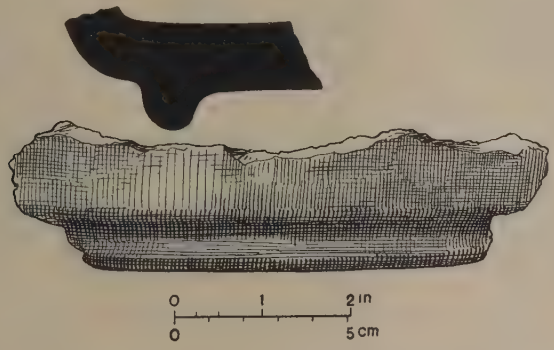


FIG. 9. Fragment of a black granite bowl. No. 115452.

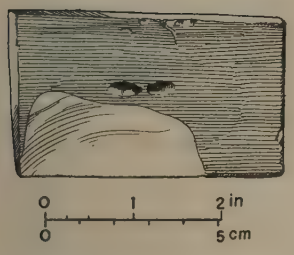


FIG. 10. Marble inlay-plaque. No. 115367.

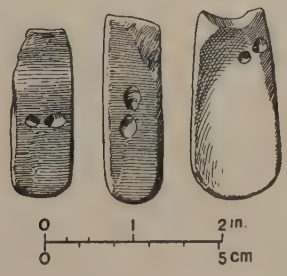


FIG. 11. Stone and shell inlay-plaques. (2581, 2585, 2584.)

the abrupt descent into the excavation. The earth was evidently disturbed, and no conclusions could be drawn from the position of the objects as found.

1. 3 fragments (1446–8 ; Nos. 115373–5) of very primitive looking pottery ; pinkish-brown in colour, badly levigated, and full of small bits of stone. 115373 and 115375 are parts of the lip, 115374 comes from the middle of the vase. On 115374 is a rough punctured decoration along a ridge in the middle of the fragment ; 115373 has these dots and vertical incised lines (perhaps made with a *cidaris*-spine ; see p. 53) on the lip ; 115375 has the incised lines (Fig. 12).

2. 22 fragments of painted primitive pottery (2303–25); av. 2 in. (5·2 cm.). 2320–1 painted lightly all over.

3. 16 miscellaneous fragments of pottery (2369–74; 2378–84; 2392). 2369 Sumerian: fragment of the moulded neck of a chalky drab ware vessel. 2343 fragment with 'reserved slip' decoration, the wash being lightly wiped off after application (Pl. xx). 2370 (No. 117966) a very curious angular handle of a vase: vitrified ware, presumably prehistoric: unpainted $2\frac{1}{2}$ in. (6·4 cm.). (Pl. xxi.)

2371. Double handle from a vitrified ware pot: twisted rope type (No. 117967). 3 in. (7·7 cm.). (Pl. xxi.)

Nos. 117968–9. Portions of two small handled vases: greenish drab ware with rough striations on the sides. $2\frac{1}{2}$ in. (6·4 cm.). Later primitive. Fragments of two other similar pots were found on the surface (Nos. 117970–1). Pl. xx.

2374. Fragment of a large painted pot with ridged and perforated lip (cf. 2168, Pl. xix). Badly worn. $4\frac{1}{2}$ in. (11·5 cm.). 2402. Fragment of a dome-shaped pot or bin-lid, with projecting ridge or false rim (Fig. 13).

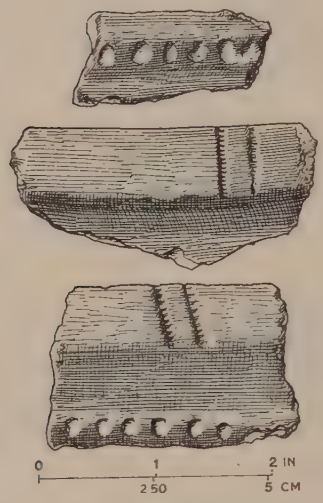


Fig. 12. Fragments of coarse pottery with incised decoration. (1446–8.)

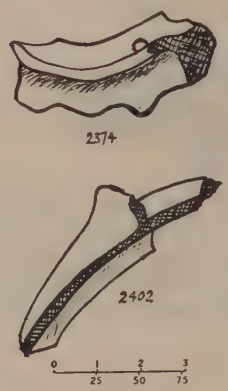


Fig. 13. Ridged pottery. (2374, 2402.)

Fig. 14. Pottery Box-lid. No. 117976.

2384. (No. 117974). Half a drab ware saucer or cup-lid.

(1449–52; 1454; 1457–9; 1464) fragments of incised, punctuated, cross-hatched, and rope-moulded pottery (prehistoric); note especially No. 115389 (1450), cross-hatched (Pl. xix).

(1463). Fragment of a flat grey ware platter with incised chess-board lines.

(2463) (No. 117975). Fragment of a flat pottery object, 10 in. by $4\frac{3}{4}$ in. (25·4 cm. by 12·1 cm.), roughly oval, pierced with holes $\frac{1}{4}$ in. diameter: has evidently been subjected to great heat (Pl. xx). Probably a cooking-grid rather than a cullender.

(2464; No. 117976). Coarse pottery vase or box-lid: circular with a raised lump in centre. D. $3\frac{1}{2}$ in. (8·9 cm.) (Fig. 14).

4. (1462; No. 117977). Part of a stag's antler (?) in black painted prehistoric ware; l. $5\frac{1}{4}$ in. (13·4 cm.) (Pl. xx). *Cf.* 2809; p. 50. (2469). Part of a curved nail': see p. 48 (Pl. xv, 3).

5. (1417). Hexagonal shell bead, with perforation, one side flat, the other slightly concave and ornamented with punctuated decoration, $\frac{3}{4}$ in. (1·9 cm.) (Pl. xii, 10). (1419). Snail-shell.

6. (1445). Part of an uncertain object of white limestone, both sides slightly convex, with rude incised lines on one surface.

§ 3. SURFACE FINDS

On the top of the platform, besides an inscribed brick of Shulgi or Dungi (Pl. XII, 7), were found eight fragments of vases of aragonite or calcite, two of pinkish-yellow marble, one of fine banded calcite, one of red sandstone (2613–24); all small, av. 2 in. (5·2 cm.) long. Also a fragment of a squared object in crystalline marble (2612), 1 in. (2·6 cm.).

It is unnecessary to give a complete list of the innumerable small objects that were picked up on the surface in the immediate vicinity of the tell. Their main characteristics have been described elsewhere (p. 8), their archaeological correlation has been discussed by Mr. Woolley in connexion with the graves and the traces of the prehistoric settlement (Ch. VIII), and the general description of the pottery fragments has been combined by him with that of the more perfect pots found by him (Pl. XLIX), so that it is not needful to repeat it here. Also the photographs are themselves a sufficient description of the pottery-fragments, and need but little annotation after Mr. Woolley's chapter has been read. A few supplementary notes on the designs of the pottery surface-finds of 1919 are all that is needed, and are subjoined. The stone objects are more fully discussed here.

Pottery. Taking the pottery first, 847 fragments were collected, of which 742 are painted primitive or 'prehistoric', the rest unpainted, of which all but 28 are apparently primitive, and of these 28 six are Arab. Of the 77 unpainted primitive fragments, 36 have incised or punctuated decoration. Of the painted fragments a few have incised decoration as well, but the conjunction of the two systems is not common. The most interesting specimens of the painted ware are exhibited in the Babylonian Room of the British Museum; the collection is illustrated in Pls. XVI–XIX, from which a good idea may be obtained of the variety and often of the real beauty of the designs of these most ancient Babylonian artists.[1] Note especially the curved zigzag lines of 1983–7, with what certainty the brush has been used; the same in the converging chevrons of 1843, 1861, 2069, 2070, and 2218, which almost suggest plant-forms, as do certainly 1870, 1535, and 1538, while the double or triple dashes of 1533, 1534, 1821, 1822, 1577, 1730, 2264 are strongly suggestive of flying leaves. It must be remembered that we have undoubted plant-representations on the same pottery at Shahrain (Thompson, *Archaeologia*, lxx; Fig. 10; p. 122), as B.M., Nos. 115337, 115330, 115334, which are certainly representations of a tree, a grass, and a larger plant. 1826, 1838–42 look like formal buds on short stalks, and are curiously reminiscent of Egyptian lotus-bud decoration. The wavy lines of 1878 and 1879 too look very much as if they were influenced by plant-designs. We have no definite representations of animals as at Shahrain (Thompson, *loc. cit.*, Brit. Mus., 115331, scorpion; 115332, frog), but 1862 (115327) looks as if it might be intended for the head of a goat, as Mr. Woolley suggests (p. 166), or possibly was inspired by some insect form. The sun and his rays may or may not be

[1] The great majority of the fragments mentioned under their numbers below will be found illustrated in Pls. XVI–XIX; a few only have been omitted as duplicates or unimportant.

the inspiration of 1621, 2146, 2155, 2160, and 2319. The three latter (we have many other examples) are apparently fragments of large shallow bowls, appropriately decorated with this design of the disk in the interior centre, with rays diverging to the circumference, as we see in 2123, 2133. This pattern is exclusive to al-'Ubaid, not being found at Shahrain or Bandar Bûshir. We see a close relation of it in the roundel (1639 barry) or circle (1638–52) with, usually, dots outside its circumference or with a Maltese cross within it. The latter occurs commonly at Shahrain. It is quite a usual motive on early Sumerian cylinder-seals. This cross often has a circular centre, and the result is a wheel-design (1652) with or without accompanying dots. 1552 (very fine ware) is a large round dot surrounded by little ones. 1551, 2285 show dot designs : also 1746, combined with bands and chevrons. In 1562 a confused design of spots in compartments. Ovals or ellipses are very rare (1633; very fine pale drab ware, almost white; brown paint): this pattern is interesting because it occurs in Egyptian representations of Asiatics as a characteristic pattern on their garments: the Egyptians never employed it. Double ellipses (1635). Chain of ellipses or twist of two wavy lines, 1631 ; more elaborate twist, 1632 (damaged). A chain of ellipses with dots (1629). Double crescents superimposed ⌣⌣, with dots, 1628. Dots and zigzag on 1747, a very interesting little vase-fragment, with its rounded form and broad lip. Drops rather than dots occur on 1748, 1736, 1737, 1753, 1756, 1759 often along the lower side of bands on or near the rim of the vase: on 2197 between diagonal bands connecting the rim-band with one an inch and a half below it. Large flying drops, 1788; the drop often becomes the small flying > (1548, 1972): in the latter case in a frame. And the flying > soon becomes the chevron (1597, 2311, 5356), which brings us back to our starting-place. Straight line impaling chevrons, forming a 'herring-bone' or branch-like pattern, 1829, 2024, 1789. Curving chevrons superimposed, 2060; with dots on the concave outer line, 1560. The chevron gives rise to the zigzag (1772, 2017, 1959, 2064): 1542 (a wavy zigzag): 1782 (a sort of horned zigzag): 1573 (large and closely set), in parallel rows : and the more usual 2175 and 1924 (roughly painted), 1781, 1891, 1724, 1555 (broad), and 1554 (of the finest thin ware), with inverted solid triangles beneath the broad black rim-band. 1603 has a design of straight lines impaling zigzags, the effect of which is on a small scale that of 1602, 1807, and 1813, in which solid triangles are effectively combined in an alternating zigzag arrangement. 1567 (of the finest thin ware like 1554), 1591, 1791, 1800, 1810, and 1760 show the solid triangles simply arranged : in 1907 apparently placed point to point between on each side two vertical lines forming a frame; a design exactly paralleled on Late Minoan III *b* vases in Greece, two thousand years later. Solid triangles of various sizes figure on 1919, 1930, 2270, 2030 (combined with parallel antidiagonal lines and—on the inside—a checker pattern), 1740, and 1852 (making a comb-like design), 1584, 1870 (three with apices nearly meeting; three piles in point, in fact). Crossed or impaled zigzags *), 1710, 2279, 1905 (broad), crossing zigzags, 1774. * within a hexagon, 1588, 1669 (a most elaborate network design), 1600 (combined

with cross-hatching). Various styles of plain cross-hatching, mostly lattice fretted (diagonally) or upright : 1676, 1677 (open), 1675 (medium), 1606 (very thick and solid), 1915, 1700 (careless), 1667 (in lozenge), 1706 (in lozenge with flying end), 1537 (in plain triangles), 1950 (in wave-pattern). Plain hatching : 2027, 2074 (between double zigzags, forming a band), 1884 (ladder-band), 2009 (in alternating triangles), 2012 (in large triangles below rim-band); *cf.* 2197. Comb-pattern : 2196. Straight lines : single rim-band, 2084, 2086; single band lower down, 2120 (very fine ware); double, 1563 (the finest highly levigated ware) : triple (including rim-band, 2037; quadruple, 2076; parallel, diagonal, and antidiagonal lines, enclosing empty triangles (2025); plain bars across long handles, 1593, 1765; on rim, 2021. Triple vertical line connecting two bands (2045); diagonal lines connecting two bands, 2014; vague straight lines, 1547, 2223 (very fine ware); wavy lines, 1540, 1585, 1851, 1868; kymation, 1578 (Pl. XXI); elaborate double kymation, 1882 (curiously resembling a Late Minoan II–III motive).

Plain ×'s, 1608, 1616, 1617, 1634 (*semé* of crosses, or crusilly); 1613, a single ×. Curved cross lines, 1766, 2049, 2050, 2167 (below rims). Interlocked pattern, 1543, 1544. Plain lozenge or diamond, 1541 (perfect), 1630 (imperfect); 1812, joined lozenges, perhaps better described heraldically as fusils; 1691, with cross-hatching; 2262, plain diagonal hatching; checker pattern of solid lozenges in a triangle or lozenge, 1690; a double-cotised lozenge or fusil, 2277; demilunes, 1536. Vague lines, 1624, 1626, 1627. Large indeterminate masses, 1582. Very broad black band, 2113; all solid black, 1576 (upper part and lip). Black, leaving the design of the body colour, angular pattern, 1849. Black with thin double zigzag scratched through and showing in the body colour, 1916. Thin wavy line scratched on colour, 1915.

For red colour, on soft ware, note 1563, 2086, 1607, 1560, 1552; purple, 2012, 1555, 2160, 2223, 1667, 1633, 2146. The examples of the very fine beautifully levigated ware have already been noted above. Brownish-black paint: 1791, 2074, 1597, 1710, 1537. Greenish-brown: 2024, 1924, 1616, 1915, 1972. An unusual brown-black on very chalky white ware (2077 : this fragment may be early Sumerian) (Pl. XII, 11).

Of very highly fired green ware, almost vitrified, with brilliant black painting, 1576, 1536, 1567, 2064, 1535, 1730, 1985, 2070, 2069, 1806, 2113, 1788, 1841, 1600.

Of the incised pottery (illustrated in Pls. XIX–XXI; and see Ch. VIII, p. 164) the decoration is geometrical, consisting of simple criss-cross or zigzag or wavy lines (1455, 2441) scratched on the soft clay with a stick or flint, the wavy line often used as a decoration of the interior of a vase (2327, 2328). A row of circles (2439), demilunes (2422), short dabs (2418, 2425), a band of diagonal lines with short dabs between them (1453),[1] notches on a ridge (1458, 2443), band of notches beneath the rim (2344), combined with a raised

[1] This specimen consists of two fragments joined, which were found some distance from one another, and have evidently been subjected to different conditions of sun and wind, or burial, as one is a much lighter colour than the other.

plain band and wavy incised line (1459). Twisted handles (2371). (For profiles see Pl. LII.)

Examples of over-fired, vitrified, and spoilt pieces: 1879, 2197, 2397, 2399, 2334, 1591 (Pls. XV, XVII, XVIII, XX). For shapes, see Pls. L, LI, p. 157 ff. Here we have carinated bowls[1] 1822, 1753, 2113, 1788, 1737, 1987, 1760; folded rim bowls and jars, 1676, 1700, 1759; concave lip-rim, 2064, 1535, 1821, 1924; out-curved lip, 1959, 1747, 1537; plain bowl-rims, 1536, 1879; straight lips common, chiefly for cups, e. g. 1907, 2025, 2076; large jars with projecting false rim and perforated real rim, 2168, 2024; tongue-like ladle-handles, 1588, 1593, 1765; vertical suspension-lugs, 2367; horizontal suspension-lugs, 2364–5, 1537, 1710 (Pl. XXI).

Sumerian; miniature vase (?) or possibly some kind of spike at the end of a wand (?) (Pl. XXI); brown ware, 2446; 2447–50, fragments of pink ware with buff slip; 2457, fine hard drab ware, lip of a bowl, 2608, lip of a coarse drab ware bin; 2458–60, very fine white ware; 2461, hard rough sandy ware; 2462, coarse burnt red ware (2458–62, late Sumerian).

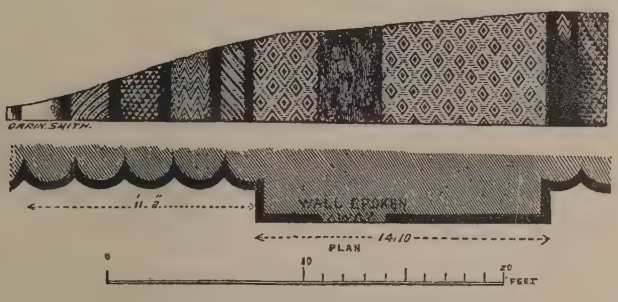
Arab fragments: 5292–4, blue glaze: 5295, drab-yellow glaze: 5296, drab unglazed, ribbed, and notched. Chinese porcelain, 5297.

Other Pottery Objects. It has been noted above (p. 8) that in comparison with Shahrain, where they are extremely common, neither the pottery sickles nor the curious curved pottery ' nails ' are very frequent at al-'Ubaid, and the flat circular ' loom-weights ' or ' net-sinkers ' with two holes, common at Shahrain, are not common at al-'Ubaid. I found none, but they were found by Mr. Woolley. 19 sickles were collected, none absolutely perfect, some mere shanks. One (No. 115369) is decorated with bands of black (Pl. XV, 4). Two examples of sickles fused together in the baking (1488–9); the latter a mass of six (Pl. XV, 5). Five ' nails ' (see below) were found on the surface: one (2469) in excavation (p. 44). All are of the characteristic prehistoric hard greenish-drab ware (Pl. XV, 3). The plain long cones, common at al-'Ubaid (Pl. XV, 2), often quite small and of pencil-like size, ranging from 2 in. (5·1 cm.) to 7 in. (17·8 cm.) in length, are not seldom of the softer drab ware, and may often be of later (possibly historical Sumerian) date, though only one, and that a small ' pencil ', was found actually with the Sumerian copper objects (see p. 42), and it is broken and certainly intrusive, like the ' nail ' 2469, found in disturbed earth not far off. All others were surface-finds, like the sickles and all the curved ' nails ' but 2469. Two of the cones have concave ends (1495–6): 1507 is unusually pointed. Both here and at Shahrain hollow cones or conical tubes occur, some with a broad black band round the broader end (1468; l. 4 in. (10 cm.): Pl. XXI). The sickles have as usual the sharp edge that makes it highly probable that they were really intended for actual use in garnering the crops, as Thompson thinks, rather than merely votive imitations of wooden sickles with flint saw-teeth (such as are very common at al-'Ubaid, but rare at Shahrain), which probably existed, though they have perished. The object of the curved ' nails ' is even less determined, as we do not know even what they are intended to be or represent. I suggest that these curved objects with convex nail-like

[1] See Hall, *J. E. A.*, 1922, p. 255 ff.

heads may really be rubbers, for grinding paint. The rubber would be taken between the thumb and the other fingers, the curved portion hooking round the thumb. The fact that at least two and possibly three (1490–2) of these objects have been found at al-'Ubaid with the heads much worn (Pl. xv, 3), lends some plausibility to this theory. That this wearing is real is certain in the case of 1490. Another explanation is suggested by the fact that similar instruments are said to be still used in north-western India for picking up the low growing crops, which are then cut with the sickle. They will then be simply hooks used in conjunction with the sickle: an explanation which gains in plausibility from the fact that at Shahrain we found them often together; they certainly always are of the same date. Otherwise these enigmatic objects are inexplicable, unless they are a form of decoration for stuccoed crude-brick walls, which the larger, at any rate, of the plain conical or pencil-like cones seem undoubtedly to

FIG. 15. Pottery cones embedded in stucco. Found by Loftus at Warka. (B.M. No. 115711.) (½)



Elevation and Plan of the Terra-cotta Cone Wall, Warka.

FIG. 16. (Loftus, *Travels and Researches*, p. 188.

be, judging from the evidence obtained by Loftus at Warka.[1] An example of these cones embedded in stucco, found by Loftus, is in the British Museum (No. 115711). (Fig.15.) It exhibits ample proof of the correctness of this theory, so far as the larger cones are concerned. Mr. Woolley points out in Ch. VI that the inscribed nail-headed cones of later days were used in this way,[2] as we see from those of Ur-Nammu, stuck in his terrace-wall at Ur: these cones must have been derived from the older uninscribed ones of early days, such as those at Warka and al-'Ubaid and Shahrain.[3] But how about the smaller ones, some no bigger than small pencils? Were they used to compose the small patterns which Loftus figures as made with these cones on his wall (Fig. 16)?[4] It seems, however, hardly likely that objects made of the same material and constantly found together can have fulfilled such unrelated functions as that of a sickle, a rubber, and a wall-ornament respectively. It would look as if the cone primarily was not

[1] *Travels and Researches*, pp. 187–8.

[2] P. 118. They, like all other cones of the kind, inscribed or not, were called *ziggati*, 'pegs'.

[3] A series demonstrating some of the stages in the development of this kind of wall-decoration is given by Andrae, *Farbige Keramik aus Assur*, p. 29.

[4] The triangular pattern in Fig. 16 reminds us of the stone triangles of the mosaic pillars (p. 40, Fig. 3; Pls. IV, XXXV), especially as it appears on half-columns; but Loftus clearly implies that this decoration, like the next, was composed of small cones, arranged no doubt like this, ⁘.

intended to be stuck in walls, and was only so used secondarily. If so, there arises the question of the flower-cones of pottery and stone, found at al-'Ubaid and characteristic of that place, but of later date than the primitive objects we are discussing. They are certainly a development of the plain cones, like the well-known inscribed cones or *ziggati* ('pegs'; see p. 49, n. 2) of later days, with their nail-like expanded heads, which they resemble, and were (in my opinion, which is not shared by Mr. Woolley) like them

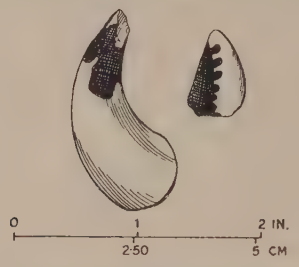


FIG. 17. Painted ware bull's horn and animal's ear (?). (1532; 5219).

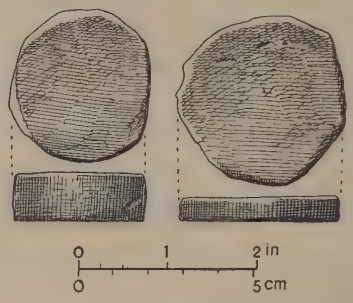


FIG. 18. Pottery roundels (2465–6)

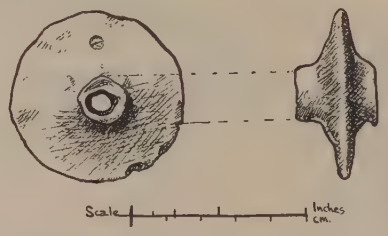


FIG. 19. Pottery whorl or model chariot-wheel (2475).

used as decorative rosettes inserted in the walls, not, as he thinks, as standing flowers placed upright in a row. (See p. 41.)

(2809). An uncertain pottery object, antler-like, of drab ware (cf. the pottery antler 1462, p. 44).

(1532). No. 115372. Bull's horn: green-drab prehistoric ware, tip black. L. $1\frac{5}{8}$ in. (4·1 cm.) (Fig. 17).

(5219) No. 118349. Ear of animal-figure (?), same ware with decoration of broad band with dots on one side: black. L. $\frac{11}{16}$ in. (1·7 cm.) (Fig. 17).

(2465–6). Two roundels cut out of fragments of drab pottery (Fig. 18). $1\frac{5}{8}$–$1\frac{7}{8}$ in.

(1420). Flat pottery bead, perforated, with cruciform design rudely cut out on one side. L. $\frac{3}{4}$ in. (1·9 cm.) (Pl. XV, 1).

Whorls, or whorl-like beads: (1525) plano-convex, circular; striated upper surface and edge: $1\frac{5}{8}$ in. (4 cm.); (1526) flat: $1\frac{1}{8}$ in. (2·9 cm.); (1527–30; 2472–4) conical: $\frac{7}{8}$ in. (2·35 cm.); (5336) conical with punctuated decoration: $\frac{5}{8}$ in. (1·6 cm.) (Pl. XV, 1). Large drab pottery whorl with hole-tube projected on either side (2475): 2 in. (5 cm.) (Fig. 19). Possibly a model chariot-wheel.

Stone Tools (Unpolished).

1. 27 roughly made spear-shaped blades and portions of blades of white chert, usually considerably worn by use; averaging in length $5\frac{1}{4}$ in. (13·3 cm.). Superficially they may remind us of palaeolithic *haches-à-main*, but the resemblance is merely a coincidence. They are obviously hoe-blades of a primitive kind (Pl. XIII, 1; *cf.* Pls. XLVI, 2; XLVII) and were identified as such by Mr. Reginald Smith, who at once rejected any possible palaeolithic relation for them.

323 smaller tools of flint, chert, and other siliceous stones were collected; 268 of obsidian and smoky quartz; 69 of rock-crystal.

2. *Knife-flakes*, the commonest type of all; a few perfect, showing the complete form and characteristic splay butt, $1\frac{3}{4}$ in. (4–5 cm.) (Pl. XIV, 1, 2). Flint, chert, and obsidian are the chief materials,

crystal being used only for microliths. Complete obsidian knife-flakes are rare. Sometimes a very pretty variegated chert with spots on an onyx background was used (725, 738, &c.), and a finely banded black and white flint (837). A mottled obsidian with black patches on a dull red background occurs (688, 829, 1067), and was also used to make small vases (fragments 1443–4).

3. *Microliths*. A minute obsidian arrowhead (1070; see below). Miniature knife-flakes, usually of rock-crystal and obsidian; the former commoner (Pl. XIV, 3). The crystal blades are very beautifully chipped, and are often (1237–8) found perfect, which the obsidian blades never are. Av. 1 to 1½ in. (2·6 cm. to 3·8 cm.). Small points, probably for awls, somewhat curved and beak-like; usually flint (Pl. XIII, 5); rarely red jasper (859) or even blue felspar (1399). Av. ¾ in. ·9 cm.). Microliths of precisely the same types were used in prehistoric Egypt: see Brit. Mus. Nos. 49318, 37534, the first a set of four, obsidian and chert; the last a single flake of carnelian; all from Abydos, and given by the Egypt Exploration Society. The obsidian and carnelian microliths resemble the al-'Ubaid beak-like types, the others are miniature knife-flakes.

4. *Borers*. Often of the same beak-like type as the microlithic awl-points. Usually flint: occasionally (819) serrated.

5. *Saw-blades*. Serrated blades are much more common than at Shahrain, where not more than half a dozen were found, both by Thompson and myself. At al-'Ubaid 63 collected: of these, 22 serrated on both sides. Most in short lengths: a few longer and apparently complete. One complete and finely chipped, with well bevelled sides (705). Another with unusually fine serration (663), in no way, however, approaching the fineness of the serration of the predynastic Egyptian flints. All flint and chert; no obsidian. Av. 1¼ in. (3·2 cm.) (Pl. XIII, 4).

6. *Arrowheads*. Flakes and points that may conceivably have been used as arrowheads are not rare; but forms that we may say were definitely intended to be barbed arrowheads are rare. From Shahrain we know however that the fully-developed barbed arrowhead was in use. We have one definite example (1059) from al-'Ubaid in obsidian (¾ in., 1·25 cm.) and 26 other probables in obsidian, crystal, flint, carnelian (654) and red jasper, showing definite attempts at barbs. These are all probably rejects. One is made from a flint from which a calcareous nodule has dropped out, leaving two barbs almost naturally made (610). A minute barbless arrowhead, obsidian (1070): 1/16 in. (0·3 cm.). A curious pointed cone of steatite (1386), measuring 11/16 in. (1·75 cm.), with two perforations at the base, the perforations being for the fastening to the arrow (Pl. XIV, 4).

7. *Scrapers, éclats, and other indeterminate forms* of flint, chert, and obsidian, are common enough and usually have a well-marked bulb of percussion. 5299 is a well chipped scraper with the original pebble back: 3/16 in. (1 cm.) thick.

8. *Cores* were chiefly of flint, chert, obsidian, and crystal, usually conical, and sometimes incompletely used, showing an untouched end of the pebble. Average 1 in. (2·5 cm.) (Pl. XIV, 1, 3).

Stone Tools (Polished and Ground).

1. *Celts*. 13, of usual western Asiatic or 'Anatolian' types; usually small, av. 1 in. (2·5 cm.) (Pl. XIII, 2), Nos. 1286–9 (1282 larger): 2 in. (5·1 cm.). Generally of hard stones such as diorite, dolerite, jasper, jadite or nephrite, and serpentine; also of black slate and a dark marble. 1289 is of a more definitely chisel-like type, with thick narrow blade.

2. *Maceheads*. (Pl. XIII, 3.) Cf. *J. E. A.* 1922, p. 253. One perfect (No. 115364), of red and white breccia (D. 2 in.; 5·2 cm.); also two fragments, one of breccia, the other black marble. An incomplete macehead, with the boring only just begun at both ends, of hard flinty limestone (115366). These are flat spherical. Half of an elongated head, breccia (1335); 2¼ in. (5·7 cm.): type peculiar to Babylonia. Small fragment, black limestone (1334); fragment, fine white chert, pear-shaped (1333). A fine breccia macehead was found on the surface by a military visitor and carried off by him as a 'souvenir', in spite of suggestions that it would be an appropriate gift to the British Museum.

3. *Hammers*. (1346) No. 118348: coarse siliceous limestone: roughly trimmed into an axe-like shape, flat on one side, convex on the other; one end rounded and with depression lengthways, other end straight: one inch from it a channel running round the object, for binding (?). The method of hafting, if employed at all, is uncertain. It may have been used in the hand simply, curved end to the palm, with the middle finger lying in the depression. 5 in. (12·7 cm.) by 4½ in. (11·5 cm.) (Fig. 20). (1336) Half of a coarse white chert hammer-stone; flat circular. D. 3½ in. (8·9 cm.) (Fig. 21). A few hammer-stones (unperforated) and rubbers were collected.

4. *Nails*. Of the remarkable stone nails, definitely imitations of metal forms, often found at Shahrain, good examples also come from al-'Ubaid. They are of slate, obsidian, smoky quartz, or crystal. (1371) No. 118343 is a very fine example with delicately worked flat circular head l. 1¼ in.

(3·3 cm.), d. of head $\frac{1}{2}$ in. (1·4 cm.); smoky quartz. (1372) No. 118344 has an elliptical pyramidal head. L. $1\frac{3}{8}$ in. (3·5 cm.); slate. (1373) No. 118345, with a much smaller shank, also has a pyramidal flat-sided head. L. $1\frac{1}{4}$ in. (3·3 cm.); obsidian. (1369–70) Nos. 118346–7, flat-headed, are of delicate amethystine quartz. (1375) dolerite, (1378) slate, (1377) obsidian, are stumpy examples, possibly worn down. The same may be said of 1367–8 (crystal) and (1361) base only, three-sided, crystal. (1362–4) crystal show the method of making: they are unfinished (Pl. XIII, 6, 7).

5. *Pegs.* Less common than at Shahrain: usually alabaster and red limestone (av. $1\frac{1}{4}$ in., 3·2 cm.). (1356) almost perfect: groove round head. (1358) similar groove: alabaster. The limestone pegs do not have this groove (1349–53). Large example (1385), slate (1383).

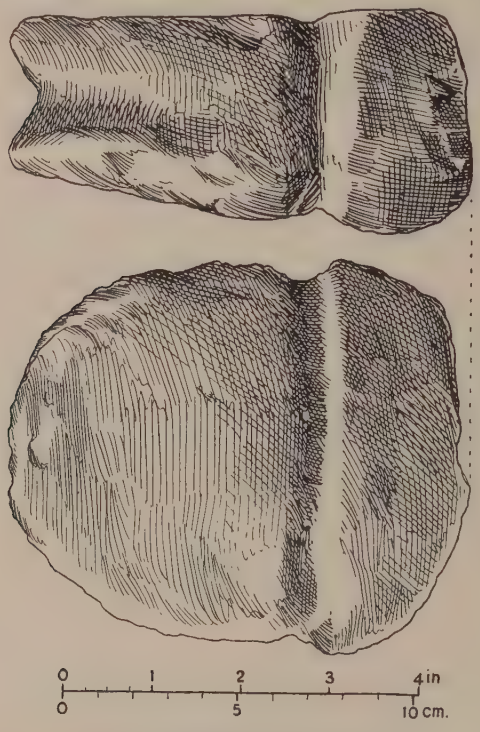


FIG. 20. Hammer-stone (1346).

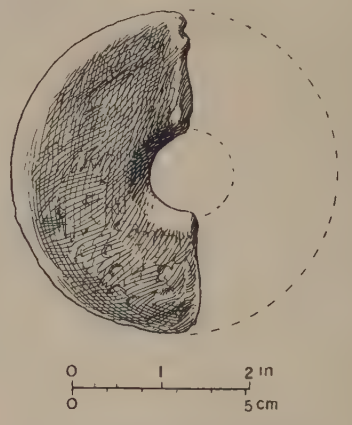


FIG. 21. Part of a flat hammer-stone (1336).

Inlay Plaques.

Red limestone: rectangular, plano-convex, (1423–7); av. $1\frac{1}{4}$ in. (3·3 cm.); square, (1428–9), av. 1 in. (2·6 cm.); slate, rectangular, (1431), square, (1430), $\frac{1}{16}$ in. (1·4 cm.); brown flint, rectangular (1439), $\frac{7}{16}$ in. (0·8 cm.); square (1438), much worn, $\frac{15}{16}$ in. (2·5 cm.); lapis, rectangular (1432), $\frac{5}{8}$ in. (1·6 cm.), ▽-shape (1433), $\frac{3}{16}$ in.; coarse blue felspar, brick-shaped (1440), 1 in.; slate, triangular, (1434) $1\frac{7}{8}$ in. (3·1 cm.); lapis, triangular (1435–6) $\frac{3}{4}$ in., $1\frac{5}{16}$ in. (3·2 cm.); lapis, finger-shaped (1437), square and broken off ($1\frac{5}{8}$ in., 4·1 cm.); slate (1442), fragment; obsidian: unfinished rectangular, showing chipping on one side (1388); $\frac{5}{8}$ in. (1·6 cm.) (Pl. XIV, 5).

Beads.

(5335): yellow jasper; cylindrical: $\frac{11}{16}$ in. (2·4 cm.). (1409) a curious carnelian double-wing bead: $\frac{11}{32}$ in. (0·9 cm.). (1413) pink jasper: semi-lentoid ▭: rough incised decoration on one side: $\frac{5}{8}$ in. (1·6 cm.). (1440) coarse red jasper pebble. (1411) coarse blue felspar rough lentoids: $\frac{1}{2}$, $\frac{5}{8}$ in. (1412) coarse sard, long lentoid: 1 in. (2·1 cm.). A number of ordinary disk beads of carnelian, garnet, crystal, slate, and other stones were picked up, and 18 examples were collected (115385) of beads mostly of the disk type, of carnelian, obsidian, lapis, chalcedony, and flint in the making, usually in the rough disk form. One disk-bead of smoky quartz has on one side the mark of the borer, just begun. Two broken or split cylinder-beads were found; one of carnelian, the other of blue felspar: one carnelian and one crystal disk-bead: a large short barrel-bead of brown jasper.

Miscellaneous Stone Objects.

1. Ear-stud. Green jasper. (1348) No. 118342 (Fig. 22), $\frac{1}{4}$ in. (0·7 cm.). *Cf.* Pl. XXXVII.

2. Object resembling the flat handle of a ladle with perforation at square end. Of uncertain use (1389). $\frac{3}{4}$ in. (1·95 cm.) (Pl. XIII, 7).

3. Two fragments of a vase of dark mottled obsidian (1443): $\frac{1}{8}$ to $\frac{3}{16}$ in. (0·35–0·9 cm.) thick.

4. Two uncertain objects resembling elliptical maceheads, with large perforation (1421–2). $\frac{3}{4}$ to 1 in. (1·95 cm. to 2·6 cm.) (Fig. 23). Green felspar.

5. Sling-stones: spherical: chert (1337); oval; quartz (1338). 1–2 in. (2·6 cm. to 5·2 cm.).

6. Arrow-sharpener (?) of fine grey limestone: pointed end, upper part broken off (1387), $\frac{11}{16}$ in. (2·4 cm.). This object is of the type considered to be arrow-sharpeners by Thompson; it has a cruciform channel on one side. This specimen may, however, be merely a plaque for inlay, and the cut on its back intended to give a hold to bitumen or other gluing material (Pl. XIV, 5).

7. Various unfinished pieces of carnelian, crystal, &c., drill-cores, &c.

8. Parts of the spines of the fossil *cidaris spinosa* (1381–2). 1 in. (2·6 cm.). Probably used as a peg. The above are all prehistoric.

9. Part of a steatite finger-ring of elliptical section (5300). D. 1 in. Probably Arab.

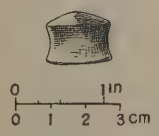


FIG. 22. Ear-stud (1348).

FIG. 23. Mace-heads (?) (1421–2).

The stones of most of the prehistoric small objects are local, the accretions of flint and chert, and the crystal, carnelian, and chalcedony pebbles being found all over the desert. The obsidian of course was brought from much farther afield, either from the east coast of Arabia or from Armenia. The lapis and aragonite came from Persia. The locality of the fine red limestone is unknown.

Objects of Shell, &c.

1. Inlay Plaques. Unlike Shahrain, none were found on the surface, though several when excavating the temple. A fragment of shell stained blue (1405).

2. Beads. Four shell-whorls used as beads: one (1416) decorated with a punctuated star-like design: it is also perforated lengthways ($1\frac{5}{16}$ in.). A fifth shell-whorl similarly ornamented and punctuated (1417) was found in excavating the temple (p. 44). Pl. XII, 10; *cf.* Pl. XXXVII.

3. Roughly cylindrical object, probably an unfinished bead: with depression in one long side. Fossil shell, L. $\frac{7}{8}$ in. (1·2 cm.) (1380).

4. Fragments of Bone, stained blue (5223–4). 1 in. (2·5 cm.).

Metal Objects.

Several large copper nails of the type used in riveting the copper animals, and of the same date.

A few small copper nails of the same type as those found at Shahrain, but without gold tops. No gold nails like those from Shahrain were found.

A piece of twisted and knotted copper wire (5348): L. $1\frac{1}{2}$ in. (3·8 cm.). Glass objects (all Arab): 49 fragments of variegated glass bangles (5225–73); 16 fragments, clear glass vessels (5274–89), 5274–5 with dark blue rim; (5290) fragment blue translucent glass; (5291) glass slag.

The conclusions to be drawn from these surface-finds have already been sketched (p. 11). From the description of the prehistoric graves and houses by Mr. Woolley (Ch. VIII), the necessary distinction between those of prehistoric and those of Sumerian date can be drawn, though it is not

possible to be certain in all cases whether the Sumerian objects are of the time of the First Dynasty or the Third Dynasty of Ur. The majority are prehistoric or any rate primitive, including most of the pottery fragments and all the stone implements; whereas the inlay plaques and stone cores should be early Sumerian, like the stone petals from the pottery flowers, which are of the same date as the temple and its copper figures: they were fastened to their backing by copper wire through V-shaped incisions in exactly the same way as the latter. The copper nails must be Sumerian, whether early or late. The 'pencil' cones may be both prehistoric and historical Sumerian; the sickles and curved 'nails' prehistoric. The date of the beads and of isolated and rarer objects not belonging to any of these main classes must remain uncertain.

ADDITIONAL NOTE TO PP. 30–32

A close parallel in another material to the copper and bitumen lion's heads from al-'Ubaid is afforded by a small head of a lion, broken off from a figure, in coarse yellow marble, illustrated below. It is in the British Museum; No. 91879. Its provenance is unknown, as it belongs to the older collections, but it is obviously early Sumerian, and of the same date as the al-'Ubaid lions. The parallel to them in the treatment of the lion's head, with its ruff, prominent eyes, whiskers shown by incised lines, and above all the grinning teeth and the projecting tongue, is complete. The round muzzle (p. 18) is also typical. The head was obviously separately made and fastened on to a body of

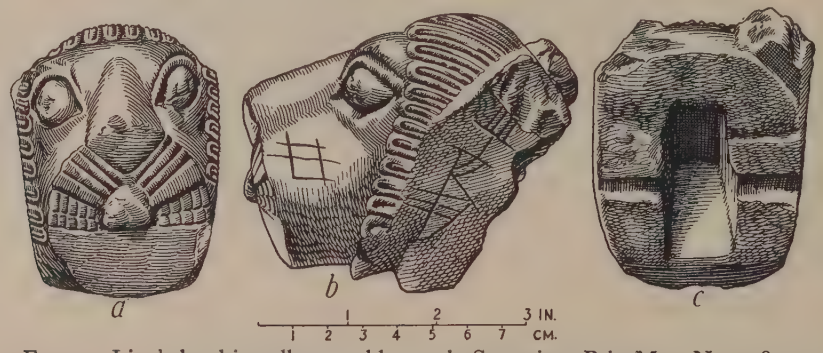
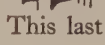


FIG. 24. Lion's head in yellow marble: early Sumerian. Brit. Mus. No. 91879.

similar or different material by means of a tenon inserted in a rectangular hole, as in the al-'Ubaid heads, but fixed by a cross-piece, the grooves for which are seen in the illustration of the back of the head. Additional interest attaches to this head owing to the fact that it is inscribed. On the left side behind the ruff is the sign  , *lugal*, 'king'; and on the same side of the muzzle is another sign, possibly , *šag*. This last is, however, very doubtful. It has been conjectured that the original word was the name of the patesi Lugal-šag-engur, of Lagash, who lived about 3000 B.C., being a contemporary of Mesilim, king of Kish, the word *engur* being omitted or missing; but this is also very doubtful, as the sign for *engur* does not exist on the head, and the sign *šag* is very doubtfully so read, though there would be no objection on the score of style. The object seems undoubtedly to date from the time of the First Dynasty of Ur, wherever it came from, and in view of its close resemblance to the al-'Ubaid lion's heads it seems appropriate to illustrate it here. The length from front to back is $3\frac{1}{16}$ in. (8·8 cm.); its height $4\frac{3}{16}$ in. (10·6 cm.).

An actual record of the setting up of two copper figures of lions in front of a temple is to be found in a year-date formula of Sumuilum, king of Larsa, *c.* 2000 B.C., published by Thureau-Dangin, 'Chronologie de la Dynastie de Larsa', *Rev. d'Assyr.* XV (1918), p. 12 ('Year when he placed two copper lions at the door [of the temple] of Ishtar'); and Legrain, *Museum Journal*, Dec. 1926, p. 386 ('Year when the two copper lions were placed at the great outer gate of Innina', 'Year after the two copper lions were placed at the great outer gate of Innina in Larsa': *mu* (*ušša*) *urudu ur-maḫ minabi kamaḫ barra* ^{d}*Ninni-ka* (*šag Arar*^{ki}*-ma*) *nangubba* :=the third year of Sumuilum). The two last inscriptions were found by Mr. Woolley at Ur: U. 6388–9.

CHAPTER IV

THE WORK OF THE SEASON 1923–4

By C. L. WOOLLEY

For four years the site of al-'Ubaid was left untouched, and when at length work was resumed there it was under different auspices. Dr. Hall in 1919 had carried out his excavations by arrangement with the Chief Civil Commissioner on behalf of the Trustees of the British Museum, and in the absence of any special Antiquities Law or Museum in Mesopotamia, all the objects found by him had, by permission of the civil authorities, been taken over by the British Museum. In 1922 there was formed the Joint Expedition of the British Museum and the Museum of the University of Pennsylvania for the excavation of Ur and its surroundings, and work was carried on under an agreement with the Government of 'Iraq whereby one-half of the antiquities found was to go to the new National Museum in Baghdad and the remaining half to be divided between the two Museums which financed the expedition. To the British Museum's initiative is due the discovery of the site and of the valuable objects described by Dr. Hall, nor has the Joint Expedition any responsibility for the work and the results of the 1919 season conducted by him; equally Dr. Hall is in no way responsible for the Joint Expedition's season in 1923–4. It was clearly necessary, from a scientific point of view, that the accounts of the two distinct campaigns should be published together so as to give as complete a picture as possible of the site, and of course Dr. Hall and myself have each profited by the other's work in discussing our own; but our contributions to this publication are independent and fairly represent the degree to which the British Museum alone, or the Joint Expedition, can claim credit for the material and scientific results of the excavations as a whole.

During its first season the Joint Expedition was too busy with its work at Ur to attempt any excavations farther afield, and it was only at the end of that season, in March 1923, that we were able even to visit the site where Dr. Hall had made such important discoveries. It had of course always been intended that we should continue his work there, and the visit was not one of curiosity only, but was to decide upon a definite programme for the next year, the scale upon which the dig would have to be conducted and the method on which the site would have to be attacked. Already, while examining with Dr. Hall his sketch-plan of the building, I had been convinced that the latter was not a simple rectangle, but had a projection or projections to the south in the area not yet excavated, where the wall of burnt brick followed by Dr. Hall had come to an abrupt end; and the appearance of the actual ruins confirmed this. On the south-east side the diggers who worked up to and round the end of the burnt-brick wall had cut right into a mud-brick construction which ran out from the main wall at right angles. Now that exposure to the air had dried the soil and brought out differences of colour

in it, one could see perfectly clearly at the end of the trench the regular courses of reddish plano-convex bricks set in light grey mud mortar, quite distinct from the mixed rubble of the trench side farther to the north-east, and it was obvious that here we should have to follow different lines. On the south-west face Dr. Hall had laid bare the upper steps of a flight of stone stairs which ran up against the side of the building of which the burnt-brick wall stopped short near the stairs' foot: it had seemed to me certain in any case that there should have been a retaining wall on the outer side of the steps, and if confirmation were wanted such was given by the change in the main wall from burnt to crude brick, since this must mean that it was no longer an exterior but an interior wall: here, too, on the occasion of our first visit we were able to trace the existence of mud brick against the outer edge of the stairway, and so to confirm the theory of a projection to the south-west of Dr. Hall's rectangle just about the point at which he had left off work. Further, my attention was drawn to a long low mound stretching south of the known building, and quite distinct from it, which was littered with fragments of early pottery and seemed to be the site either of a settlement or of a graveyard, and in either case well worth excavating: some seven hundred metres north of the building there were other remains, isolated oval mounds of varying sizes, which it would also be necessary to examine: taking it all in all I calculated that the site required a far greater expenditure of time and labour than had been supposed.

A regular campaign was therefore planned for the autumn of 1923, the beginning of the next season. Lying as it does more than four miles from the expedition house and well out in the desert, al-'Ubaid presented certain difficulties which had to be overcome by an organization not required at Ur itself. The Arabs, always fearful of raiding parties, were not easily persuaded to stop so far out from the cultivated area and the neighbourhood of their villages, but could not be expected to walk so long a way to and from work in the early morning and at nightfall; they had to be accommodated on the site and given such assurance as would induce them to stop in the accommodation provided. The working gang was to consist of sixty men, and army tents were pitched on the outskirts of the mound to shelter them, an armed guard of eight men was engaged from the local shaikh to safeguard the camp during the day and to patrol it through the night, and for greater security fifteen of the workmen were allowed to have their rifles with them, left by day in charge of the guards but resumed at sunset, so that they might act as reinforcements in case of attack. Really there was but little risk, and nothing untoward ever happened; but the men's qualms were allayed at small cost, and without such precautions we should not have got any work done at all. Then water had to be provided for drinking and cooking: most of this was carried on donkey-back from the railway station six miles off, but twice a week a water-wagon was run out along the line to a point only two miles away where a depot was formed available in case of shortage; this proved extremely useful, especially when rain had made the long trek from Ur Junction almost impossible for laden donkeys, and I was most grateful

to the Director of 'Iraq Railways for the arrangement. The men needed firewood also, for the Arab likes only fresh bread, and while the villages were too far away for daily supplies to be brought out (at Ur the women and children come to the site regularly at midday with lunch for their men folk), there was no sort of fuel near the tell wherewith they might bake their own: a regular wood ration therefore was issued (one old railway sleeper *per diem* for the whole gang), and every evening as the car took me back to Ur through the dusk the last thing I would see was each mess squatted round its own little camp fire deep in the mysteries of bread-making.

It would have been impossible to carry on the dig properly without a car of some kind, especially as during the whole time of the al-'Ubaid work there were at Ur more than a hundred and thirty men engaged on clearing the Ziggurat, and this could not be done without supervision: moreover, for the removal of objects from the dig to the house wheeled transport was essential, so a weather-beaten Ford vanette was purchased from the Government stores and rendered excellent service. Hamoudi, my old Carchemish foreman, was in charge of the al-'Ubaid gang: he lived in the expedition house and went off in the car before daybreak every morning, returning with me at the end of the day's work. I used to go off at the same time unless there was something at the Ziggurat which demanded special attention, in which case I would follow on an hour or so later; and on Saturdays I sometimes did not go out at all, as that is pay-day for all the men and accounts have to be made out and the books put in order, and work stops early for the ceremony of pay. Mr. Gadd and Mr. FitzGerald were in charge of the Ziggurat excavations, but constantly one or other of them joined me at al-'Ubaid, and always on Saturdays one took my place there, so that supervision was ample and unintermittent. It was not easy work, for when we were engaged on the tombs objects turned up in such quantities that the recording of them could scarcely keep pace with the men's rate of progress, and when we came to the temple the sculptures in crumbling copper and the mosaics needed so much labour spent upon them before they could be lifted from the soil that here too it was difficult not to drop behind: in the end the work was done fairly satisfactorily, but I certainly could not have done it alone, and am well aware of how much I owed to the assistance of the two others, and also to Hamoudi, who never spared himself and relieved me in every way possible.

Work was begun on the low-lying southern mound which had not been tested by Dr. Hall, a trench 30·00 m. long and 4·00 m. wide by 2·10 m. deep (maximum) being cut across its highest point. Here we found scanty remains of very ancient hut dwellings contemporary with the painted pottery of which fragments strewed the site: only in one spot was brick employed, apparently in the construction of a hearth, and the usual material was reed matting coated on both sides with mud containing a certain proportion of dung; reed matting smeared with bitumen also occurred, and traces of light brushwood together with carbonized fragments of heavier wood: clearly the huts had been of post-and-mat construction, mud-plastered or otherwise, exactly like one of the types used by the Arabs of the neighbourhood to-day:

roofs may have been vault-shaped, as in modern examples (see Pl. XXXIX, 2, 3), or perhaps the brushwood may point to the use of the flat roof of matting, brushwood, and mud laid over poles, though with post-and-matting walls this is less likely, and the brushwood could be explained in other ways. Small rough socket-stones showed that the inhabitants could afford permanent doors of timber, and broken querns and rubbing-stones were evidence of agricultural life; besides painted pottery there was much rough domestic ware, red and grey, and a fair amount with combed or incised decoration, but no complete shapes could be recovered, and all one can say is that spouted types were in use: clay sickles were common, there were some large model nails in clay and a few of the small slender cones used for wall decoration (see pp. 48, 49), one or two flints of the spoon-shaped type (otherwise described as hoe-blades; *cf.* p. 50), and small flint chips perhaps from sickle-blades (see p. 151).

Meanwhile experiments in other parts of the mound had brought to light graves rich in pottery and other objects, and work on the poor remains of the settlement was abandoned, as soon as the character of that had been established, in favour of a more thorough investigation of the cemetery. The graves were found to lie very close together, sometimes one below another, sometimes encroaching on one another, so that while it was evident that we were dealing with a graveyard which had been in use through a long period and with graves therefore of different dates, it was on the other hand not easy, and sometimes impossible, to determine to which of two or more interments some of the vases and other furniture belonged, and so to use all the material as a basis for any chronological sequence. In spite of the disturbance and plundering of many of the burials the cemetery was so rich that at the end of a fortnight we were almost flooded under with objects, and I thought it better to stop for a while and give myself leisure to order and digest the material already to hand before amassing more. The whole gang was accordingly put to work on the temple mound.

A beginning was made at the south and south-east of the tell. Some pick-men were directed to deepen and widen the trench dug by Dr. Hall from the east corner to the end of the wall of burnt brick, and to try to find the face of the crude brick projection into which the former workers had cut, and the rest of the men were lined up some fifteen metres away from the building with orders to work towards it, thus testing the area between the limit of Dr. Hall's excavations and the assumed south corner of the temple. The latter gangs at once found themselves scraping the weathered surface of a solid mass of mud bricks, dark grey in colour and obviously different from the mud brick of the projection from the temple, regularly laid in mud mortar: accordingly some of the men were made to face about and trace the same south-eastwards, with the result that at a distance of 39·00 metres from the temple front they came upon a retaining-wall of burnt brick—not the plano-convex bricks of the temple, but larger and squarer flat bricks having on one side the deeply-impressed finger-marks which characterize the plano-convex type and are here a survival into a later period. The rest of the line of diggers advanced towards the temple: before long the easternmost gangs began to

lay bare a flight of stone steps, of which the surviving treads had been buried below the grey mud brick: the others, cutting into the now steeply rising slope of the mound, found that the grey brickwork rose with it, its upper surface weathered to the present contour, its lower laid in a series of steps over fallen brickwork of a different colour and texture—the debris of the temple which was our objective: the grey brickwork could be traced across the wall-line of the earlier building, and, as Dr. Hall had remarked, formed the cap of the existing mound: at one time it had completely buried the 'first period' temple. As we began to remove this later brickwork on the south-west side of the staircase there came to light just such a hoard of precious objects as had been found by Dr. Hall on the north-east side of it —objects, that is, similar so far as regards their general type and date, but, as I shall have occasion to point out later, individually different—statues and reliefs of cattle in copper, mosaic friezes in shell and in stone, as well as copper-sheathed columns and columns in mosaic and artificial flowers like those from the earlier excavations. The whole of the area between the stairs and the south angle of the building was littered with these precious remains hidden below or mixed up with the masses of mud brick fallen from the wall above, and the removal of them was a matter of no small difficulty and kept us busy for a long while. All the debris in front of the south-east façade was removed for a distance of some sixteen metres from the wall, work going down to or below the original floor level: we then dug round the south corner, until here too we came upon mud brick forming a projection from the south-west face of the burnt-brick rectangle, and followed this round as well as might be—for its edges were completely destroyed—to the foot of the second flight of stone stairs whose upper treads had been cleared by Dr. Hall: the drain at the west angle of the projection was the only feature calling for mention. At the foot of these stairs, on both sides and in front of the buttress-like drain support on the north-west side, in the middle of the north-east side and against the east corner of the building we enlarged the narrow and shallow trench by which Dr. Hall had traced the retaining-wall and carried it down to floor level; but apart from the pipe-drains in front of the buttress and a patch of brick paving and another pipe-drain by the middle of the north-east side, nothing was found: and so, having thus thoroughly tested the site and proved that there were no objects along three of its faces to make digging worth while, I decided to stop work. The plan of the building had been established so far as the state of its ruins permit—the only doubtful part is the exact extension of the mud-brick platform on the south-west—and all ground likely to contain antiquities had been thoroughly dug over: on the three sides where the walls had not been cleared down to their foundations along their whole length the accumulation of soil did not extend far from the face of the building, and represented for the most part the later grey-brick structure and not the original temple, and beyond this relatively narrow slope erosion had destroyed the original floor level, so that here there was no hope of further discoveries. But the south-east side had amply repaid us: not only had we got from it, as Dr. Hall had from its eastern

corner, a collection of objects of art unrivalled from any early Babylonian site, but amongst these was one, the foundation-tablet of the temple, which fixed the date and authorship of the building and brought into Mesopotamian history a period which heretofore had been generally regarded as mythical.

The workmen were now brought back to the cemetery on the little hillock to the south, and a number of graves were dug; but as the excavations were pushed farther northwards and westwards over the brow of the hill and down the slope exposed to the prevailing winds, it was found that the surface of the ground was more and more eroded and the graves were in consequence more ruined: the fragments of pottery which strewed the ground here in far greater quantities than on the comparatively sheltered south-eastern side were in themselves evidence of the denudation of the soil. It is worth remarking here that in southern Mesopotamia, where the destruction of ancient monuments is due to two main causes, wind and rain, these two work in contrary directions. The dry north-west winds prevail during the greater part of the year, the winter rains generally come up on the south-east wind. A wall standing exposed suffers more from the brief action of driving rain than from mere wind however constant and violent; the north and western faces of walls are therefore as a rule the better preserved. But in the case of a mound consisting largely of light soil wind is the chief agent of destruction: when once a natural slope has been formed rain tends rather to consolidate the surface and washes very little down from it, whereas the wind is for ever carrying away the fine alluvial dust and grit of crumbled brick, and will in the end produce a level; at the same time, in the case of standing walls, the wind deposits this dust against their lee side and further protects their south and east faces. It was then no surprise to us to find that the north-west section of the cemetery was less rich than the south-east, where we had begun work, but it was an additional argument for an early closing down of the excavations. We had amassed a very great quantity of material, and what was now coming to hand was almost always a repetition of what had been found earlier: new types of vases or other objects were few and far between and added for the moment little to our knowledge: moreover, the season was drawing to an end, and it was imperative that it should see the completion of our work on the Ziggurat of Ur, which had proved a bigger job than I had expected: so, rather reluctantly, I decided to leave the cemetery unfinished. A hundred graves had been dug, and if the closer examination of their contents showed that more work would be necessary in order to obtain the full scientific results, the excavations could be renewed in a later season when we should know better what was wanted; in the meantime we had plenty of archaeological material to study, and the skulls, &c., were probably sufficiently numerous and in good enough condition to establish the ethnological character of the people. One day was spent in experimental work on two or three small mounds in the neighbourhood, and proved that there had been other graveyards of later date (reaching down to the Kassite period) now too hopelessly ruined to repay excavation: then our camp was struck and the whole gang concentrated its efforts on the clearing of the Ziggurat of Ur.

THE TEMPLE MOUND: THE THREE PERIODS

The First Period.

The ruins of the temple mound belonged to three distinct periods. The lowest down and the earliest of these was that identified by the foundation-tablet already mentioned. This was a tablet of grey marble shaped like a plano-convex brick, measuring nine centimetres by six, and bore the inscription, ' Nin-khursag : A-anni-padda king of Ur, son of Mes-anni-padda king of Ur, has built a temple for Nin-khursag '. The name of A-anni-padda is new to us, but that of his father is given on the Sumerian king-lists as the first of the First Dynasty of Ur : as Mr. Gadd explains in Ch. VII, there is no difficulty in fitting the new king's name into the list—on the contrary, his admission does away with what was a stumbling-block, the unlikely length of reign attributed to the founder of the Dynasty—and though the exact date of the dynasty must remain uncertain, we can at least assign our temple at al-'Ubaid to a definite sequence-point in Sumerian history.

The site of the temple was a low natural hillock, an ' island ' rising above the alluvial plain : on the top of this was built by A-anni-padda a solid platform whose core was of crude mud brick and its walls of mud brick above and burnt brick below resting upon a foundation of limestone blocks two courses deep ; the approach was by a flight of stone steps projecting from the south-east side, and on the south-west side there abutted a smaller platform built of crude brick throughout in which there was a second flight of steps. On the main platform stood the temple.

That the building was violently destroyed was evident from the condition of the ruins, for the objects found lowest down on the floor level at the foot of the platform were just those which could have been removed and flung there, and could not have fallen there of themselves, and on the top of these lay whole sections of the actual walls of the shrine, undermined and overthrown before the delicate ornament attached to the wall face had time to fall off or decay : it was also evident that the ruins had been long neglected and exposed to the weather, for not only was there no stump of the temple wall left in position, but the upper part of the supporting platform too had perished, worn away by rain and wind, so that by the time the site attracted the attention of a new builder the original structure was represented by a mound whose top, weathered to a gentle slope, was standing no more than three and a half metres above the First Dynasty pavement level.

The Second Period.

Dr. Hall distinguished only one building on the mound posterior to that of A-anni-padda ; I was able to prove the existence of two, but in my preliminary report I wrongly attributed to the second period the burnt-brick boundary wall by the canal bed. During the winter of 1925 natives removed some of the bricks of this wall, and it was found that a certain proportion of them bore the stamp of King Dungi, whereas the rest had the two finger-

holes which are generally associated with an earlier date. This discovery greatly complicates the attribution of the existing remains, and makes necessary a very clear statement of the evidence.

The upper part of the tell was formed of a mass of crude mud bricks grey in colour, carefully laid in mud mortar, whose foundations were carried up the slope in a series of steps cut into the face of the earlier ruin-mound; it could be followed up to and over A-anni-padda's building, but beyond this, to the north-east, north-west, and south-west the modern surface had been denuded below foundation level, and the original limits of the brickwork could not therefore be defined; on the south-east, at a distance of forty metres from the old temple, there was a depression which clearly marked the course of a small canal running between the temple and the cemetery mound: part of the north bank of the canal was roughly revetted with burnt brick, but for a space corresponding to the façade of the new building it had been faced with an admirably built water-wall or quay which we found standing to a height of more than two metres. The grey brick mass, which at the top formed a solid bed 1·60 m. thick, thinned out considerably towards the bottom of the slope, but it could still be traced right up to the quay wall. Obviously the brickwork was a platform which had risen up in a series of stepped terraces of which the older ruins formed the core; it had been weathered down to a uniform slope in which one could no longer distinguish the edges of the terraces, but these may well have corresponded more or less exactly to the rising steps of the foundation. The scanty remains of the superstructure show that the highest terrace level was not much more than four metres above the floor at the foot of the First Dynasty temple platform, and therefore only 4·80 m. above the present top of the water wall: assuming that the latter never stood much higher than it does now, we have a total rise for the terrace system of only some four and a half metres. That is not enough to justify us in calling the building a ziggurat, but none the less this stepped platform surmounted by its temple of burnt brick does seem to be in the nature of a prototype of the tall staged towers of later periods.

As I have stated above, the quay wall, which I had taken to be part of the second period building, is proved to be the work of the Third Dynasty king, Dungi or Shulgi.[1] The grey mud bricks measure 0·23 m. × 0·17 m. × 0·08 m., a measurement which at Ur we find used by Ur-Nammu, only just before Dungi's time, though Dungi's own bricks tend to be slightly larger; but as here Dungi is employing an archaic type of burnt brick (he did the same in his temple of ^{d}⸢⸢-TAB-BA[2] at Ur), it would not be unreasonable to assume that his mud bricks also might be rather old-fashioned; in that way the whole terrace construction might be attributed to Dungi and the intermediate period would disappear from the site. But the evidence shows that this cannot be the case. On the top of the mound, close to the junction of the north-east side of the stair ramp with the A-anni-padda platform, there is a piece of wall 1 m. long and 0·45 m. wide, made of burnt bricks, flat and with impressed finger-marks, measuring each 0·30–0·31 m. × 0·22–0·23 m. ×

[1] See p. 14, n.

[2] Lit., 'Double 40', but perhaps ^{d}·ŠE.TAB.BA.

0·08–0·085 m.; the remains of the Dungi building close by are of bricks, flat and with two impressed finger-marks or with stamped inscriptions, measuring 0·29 m. × 0·21 m. × 0·07–0·075 m.; the two cannot be the same. Moreover, against the north-east face of the Dungi building there is a gap between it and a wall of grey mud brick abutting on a high-standing survival of the old red mud brickwork, and into this gap there have been tumbled as filling a number of the larger burnt bricks; the Dungi building rests partly on the grey mud-brick wall, which has been cut away to receive it, partly on the brick filling. It is clear that the larger flat bricks belong to a building older than the time of Dungi; and since the wall of which they form part rests upon the grey mud brick—is indeed let into it—this cannot be of a later day than they. We have therefore a period intermediate between A-anni-padda and the Third Dynasty of Ur, and to this must belong the whole of the great terraced platform. As regards the quay wall, I can only suggest that it is a re-facing by Dungi of the original mud brick, or, as its foundations go so much deeper down than do those of the mud brick platform, that the canal was dug by the Third Dynasty king along the front of an already existing platform, and that the building of the wall was a necessary corollary thereto. No objects at all were found connected with the second peried.

The Third Period.

On the very top of the mound were remains, first noted by Dr. Hall (pp. 14, 45), of a construction in burnt brick, the foundations, now from one to four courses deep, of the north corner of a building which had covered the south angle of the A-anni-padda platform and had extended considerably beyond it to the south. The stamp of Dungi on a number of bricks *in situ* (Pl. XII, 7) proved to Dr. Hall the authorship of this third building. Apart from the quay wall already described, this mere scrap of substructure was all that survived of the Third Dynasty building, and no objects were found connected with it.

Chronology: Distinctions and Dates.

King Dungi seems to have found his predecessor's terraces in tolerably good state, for in using the top platform as the base of his own work he laid his foundations at practically the same level as those of the earlier temple; indeed he must have cleared away the wreckage of its walls to make room for his new construction on the existing floor which probably needed mere repairs rather than reconstruction. Certainly there had been no great weathering of the ruins, such as took place in the interval between the first and the second buildings, and the second temple was therefore either longer lived than the first or else closer to Dungi than to A-anni-padda in the date of its foundation.

In the First Dynasty platform all the bricks are definitely plano-convex (Pl. XII, 7), though not of the most markedly convex type, *i.e.* they should belong, according to the analogy of Kish, to the latter part of the period in which truly plano-convex bricks were used. The burnt bricks measure 0·21 m. × 0·16 m. and are 0·04 m. thick at the edges, the increase to the top of the

convex face being variable, not more on the average than 0·03 m. On the convex face are one or two deeply impressed finger-marks for the better bedding of the mortar. The crude mud bricks are of a pronouncedly reddish colour; they measure approximately 0·28 m.×0·18 m., with a total thickness of 0·075 m.–0·08 m., the edges being about 0·04 m. In the patch of burnt-brick pavement against the north-east side of the platform, which is let into the original floor level and must be contemporary with the existence of the A-anni-padda temple, though not necessarily with its foundation, there are, together with plano-convex bricks of the normal type, flat-topped bricks measuring 0·30–0·33×0·21–0·23 and 0·04 thick, with impressed finger-marks.

In the Second Period, as stated above, the burnt bricks measure 0·30–0·31 m.×0·22–0·23 m. and are 0·08–0·085 m. thick; they are flat-topped and marked with one or two deep finger-prints: the crude mud bricks are grey in colour and measure 0·23 m.×0·17 m.×0·08 m. The Dungi bricks measure 0·29 m.×0·21 m.×0·070–0·075 m.[1]

We have thus three successive buildings of which the second is separated from the first by a space of time shown by the state of the ruins to have been considerable, but is closely related by its brick-making tradition to at least the end of the period during which the first building yet stood. There is nothing in the general state of the ruins to argue a long interval between the destruction of the second building and the founding of the third, and the brick measurements would imply that the interval was comparatively short. The oldest temple was built by the second king of the First Dynasty of Ur and may be assumed to have existed throughout that dynasty, to which the king-lists assign a period of 120 years, a period quite long enough to allow for the introduction of the flat-topped bricks found in the pavement. Its violent destruction, of which we have ample proof, can hardly have taken place during the time of the dynasty which A-anni-padda's father established; it is the work of an enemy who emphasizes his triumph by overthrowing the shrines of the vanquished gods, and on the evidence of the dynastic lists the earliest opportunity for such sacrilege was the subjugation of Ur by the kings of Awan: Mr. Gadd argues (p. 139) that the destruction was in all probability due to Eannatum of Lagash: in either case the temple did not outlive the First Dynasty of Ur. The latest temple was, we know, built by the second king of the Third Dynasty of Ur; it remains to fix the date of the intermediate building. The second temple was planned on a much more ambitious scale than the first, and is therefore not likely to have been the work of any other than a native ruler celebrating the renaissance of his city state; neither a foreign governor nor a private citizen would have attempted to outdo the achievements of the old paramount king. The founder, judging from the character of his bricks, lived nearer to the time of Dungi than to that of A-anni-padda, but he was not Ur-Nammu, for the bricks do not suit, and in any case Dungi is not likely to have destroyed his father's work in order to substitute his own; the destruction was again

[1] Brit. Mus. No. 114208 [1919; see pp. 14, 45], measures $11\frac{3}{4}\times8\times2\frac{3}{4}$ in. (0·29×0·20×0·0685 m.).

probably due to an enemy. We shall hardly go wrong if we attribute this intermediate building at al-'Ubaid to one of the unknown kings of the Second Dynasty of Ur, and in that case we shall find a possible occasion for its overthrow in Sargon of Akkad's conquest of Ur.

The Ruins of the First Period.

King Dungi was the last man to build at al-'Ubaid. When his temple in its turn fell into decay, the old site was deserted, and for four thousand years the sun's heat has crumbled the bricks, the rain has swept the mud of them down to the gradually rising plain, and the wind has carried their dust over the face of the desert that was once irrigated fields, until the wreckage of its walls vanished altogether, and the ruin dwindled to a little mound whose top was capped by a few bricks from the lowest foundations laid by the Third Dynasty king and its slope had been carved by the weather from the stepped terrace of his nameless forerunner. But this same terrace, a solid casing of mud-brick well laid in mud mortar, and thick enough to be impervious to rain and air, has marvellously preserved from destruction the debris of Nin-khursag's oldest shrine over which it was built. We were of course obliged to cut it away in order to lay bare the First Dynasty temple, and a very tough job it proved; on the south-east side the brickwork was still in places more than two metres thick and so hard that the entrenching tools ordinarily employed by our men were useless and recourse was had to heavy railway pickaxes. Immediately below the grey brick lay a stratum of red crude brick just as thick and if possible harder still, representing the walls of the First Dynasty building which had fallen forward in great masses and lay there not as broken rubble but as wall-sections, each intact and bound together by the grey mud mortar: this too had to be cut away before the objects which had adorned the outer (now the lower) face of the wall could be found. I doubt whether I have ever seen harder soil for digging; picks had constantly to be resharpened, mended and replaced, and the knives used for clearing round the objects were constantly being broken: had it not been for the excitement of the discoveries the Arab workmen, whose hands were all cut and blistered at the close of the first day's work, could never have been persuaded to carry on. As it was, progress was slow from the beginning, and grew slower when we reached the level at which lay the antiquities, for here quite unusual care was necessary in view of the peculiarly delicate nature of so many of them and of the unyielding character of the soil from which they had to be extricated: but of these, and of our manner of dealing with them, I shall speak later (*vide* Chapter V).

The standing ruins are those of a temple platform. The plan of this is, in intention, a rectangle measuring 33·00 m. × 26·00 m. with its angles orientated to the cardinal points of the compass.[1] Owing to the faulty execution by the

[1] In view of certain objections which have been made to such a description, it is perhaps worth while to explain exactly what is meant by it. It does not mean that the diagonals of the building are so orientated—obviously this is possible only in the case of a perfect square, which the al-'Ubaid

builders of the architect's design, the wall-measurements are not equal, the angles are not quite true right angles, and therefore the orientation of them is not exact; but there can be no doubt that the architect did aim at such exactitude of direction, and planned his building in accordance with a tradition which at a much later time dictated the laying-out of the great Ziggurat and the chief temples of Ur. Three of the sides of the rectangle are broken by projecting features; near the centre of the north-west face there is a sloped spout-like drain of solid brick, on the south-east there is a staircase, on the south-west there is a subsidiary platform containing a second flight of stairs; from the west corner of this platform a brick-built drain runs down the hill on which the building stands.

The materials used in the construction are limestone, burnt brick, and crude mud brick.

The main platform is formed of a core of mud bricks laid in regular courses in grey mud mortar, the containing-walls are of burnt brick below resting on stone foundations and of mud brick above. The foundations consist of two courses of heavy limestone rubble masonry, quarry-dressed blocks averaging some 0·30 m. in length with a thickness in the lower course of about 0·20 m. and in the upper course of rather less (*v.* Pl. XXIV, 1).[1]

Above the stone foundations the retaining wall is carried up to a height of 1·60 m. in burnt bricks of the plano-convex type, measuring 0·21 m. × 0·16 m. having one, or two, deep finger-impressions in the cushion-shaped upper face, intended to give a lodgement to the mortar, a necessary precaution, for as the mortar employed was a fairly soft mud the bricks sank in it so that the flat bottom of each rests directly on the rounded top of the one below, and all the mortar is driven out to the sides and only that in the finger-holes is left to key at the bearing. The bricks are laid as stretchers along the wall face, with the result that their shape is scarcely noticeable, for the broad horizontal bands of the mortar hide the convex upper surface, and only the narrow edge of the brick can be seen. The ends of the bricks were laid practically touching, and no care was taken to grout the mortar down into the vertical joints.

platform is not: it means that the bisecting lines of the angles point to the north, south, east, and west respectively, or, in other words, that the *direction* of the corners is that, and in consequence the sides of the building face north-east, south-east, south-west, and north-west; this is the only way in which an oblong can be said to be orientated, and this is true orientation.

[1] This is a surprising feature in view of the fact that there is no hard stone in this alluvial land, and that it had to be brought from a distance of at least forty miles. If al-'Ubaid stood alone one might regard the use of stone as a mere freak on the part of its builders, but at Ur also we have found walls of plano-convex bricks resting on limestone blocks, and we must conclude that this represents a practice not uncommon in the First Dynasty of Ur. Dr. Andrae (*Die archaischen Ischtartempel in Assur*, p. 28), on the basis of his discoveries at Assur, put forward the theory that southern or Babylonian building is characterized by the absence of stone foundations, and that when such occur they must be taken as evidence for the incoming of a mountain folk or, in the case of Assur, for the recrudescence from Babylonian servitude of an aboriginal stone-using population. Dr. Andrae certainly meant to exclude the Sumerians from the category of stone-using peoples, in which he is wrong; if the mountain origin of the Sumerians be accepted his main argument may hold good. [At Eridu (Shahrain) the city-walls and bastions are partly built of rough masses of gypsum (identified as such by Mr. Campbell Smith, of the Natural History Museum) which is found not far off in the desert. These walls date between the First and Third Dynasties of Ur, and are more probably of the older period. H. H.]

The burnt-brick wall had a thickness of *c.* 1·25 m. The twelve bottom courses (0·90 m.) present a flush face, and with the thirteenth course there starts a series of shallow buttresses 0·60 m. wide, with between them recesses 0·50 m. wide and 0·15 m. deep; only on the south-west side, for a distance of eight metres from the lowest stair-tread, the wall-face was flush for its whole height. At the height of 2·35 m. from the top of the stone foundations the burnt brick construction gave place to crude mud brick, bricks of the same type as those forming the core of the platform, of a very fine hard reddish clay, plano-convex in shape, measuring approximately 0·28 m. × 0·18 m. and 0·075–0·08 m. thick in the centre, laid in the same grey mortar as the burnt brick. I may say here that these mud-brick walls were extremely hard to follow. The face of one of these, with its narrow brick edges and broad lines of mortar, weathers more, and more irregularly, than does a building in the rectangular bricks of a later period, and with an irregular face the straight lines of the construction disappear and the mortar shows up only in isolated roughly triangular lumps: moreover the platform walls, partly thanks to the manner of their destruction and partly because of the thrust of the packing behind, had been bent outwards and forwards at a sharp angle, so that what in Pl. XXIV, 2 looks like a wall face rising vertically from the top of the burnt brick construction is in fact an artificial cutting into the core of a wall whose face was when found at least forty-five degrees out of the perpendicular; and this skew-cutting into the brickwork, which was unavoidable, exaggerated further the irregularity in the appearance of the mortar courses. Fortunately, enough of the true face was left along the lower courses of the mud brick construction to prove that the pilaster-buttress decoration of the burnt brickwork was carried up consistently to the top of the building.

In the panelled face of the al-'Ubaid platform we have the earliest known instance of a form of decoration which was to be characteristic of temple buildings in southern Babylonia down to the very last days of Babylonian independence. The word ' decoration ' is used advisedly, for buttresses so shallow as these can serve no constructional purpose, and their value is purely aesthetic in that they relieve the monotony of the wall surface by their sharply defined vertical lines. There are three types of such decoration: (1) where as here the buttress and the recess are both narrow and practically equal in width; (2) where buttresses still shallow but broad are separated by very much broader recesses, as in the case of the Ziggurat of Ur, whose buttresses measure 2·40 m. across with a projection of only 0·20 m., and are 4·40 m. apart; and (3) where the buttresses form the real wall face, and the recesses are reduced to double or T-shaped grooves in that, a type which occurs at Ur from early times to Nabonidus. Of these I take type No. 2 to be a derivative from No. 1, an adaptation to a building on a very large scale of a decoration which in its strictly traditional form would have been disproportionate, and in the translation the original sense has been lost: types (1) and (3) seem to me to be clearly derived from construction in wood.

In both styles, (1) and (3), there is always at the base of the wall a strip of

flush brickwork below the recesses: the upper part of the wall nowhere survives, but there is sculptural evidence to show that along the top also there was a band of plain brickwork flush with the face of the buttresses (*cf.* Figs. 26, 27). The general effect is certainly that of wooden construction with a bedding beam lying at ground level, upright posts standing on this, and a tie-beam above joining up the post-heads. In style (1) the posts are simple, in (3) they are double, thus, ⊓⊓. The latter is precisely the wood construction which is found imitated in Egyptian stone architecture, e.g. in the tomb-maṣṭaba of Ḥesirē' at Abuṣīr; there the double pilasters are shown to be made by the overlapping of thick planks which are 'sewn' to each other by cords passed through holes in the plank's edge. Professor Petrie found at Tarkhan examples of this construction in actual woodwork (Fig. 25).[1]

FIG. 25. Wood panelled wall at Tarkhan.

In the Ḥesirē' maṣṭaba the paintings make it quite clear that to the open framework formed by the beams there were lashed woven hangings which were the walls;[2] in other words, we have here the first step towards permanent building, when the primitive tent is replaced by something which is far more solid and less easily moved from place to place but is still a 'tabernacle' made from the original elements of poles and cloth. It is worth noting that the hangings in the Egyptian picture bear patterns which are not Egyptian but Syrian, patterns which survive in the woven *killims* of the present day; and this should point to Asia, rather than the Nile valley, as being the home of half-timber building. In the cemetery mound at al-'Ubaid we found remains of huts of the prehistoric period, contemporary with the painted pottery which passed out of use long before the First Dynasty of Ur, and in these the material employed was reed matting plastered with mud; such a building material, no less than tent-cloth, requires a certain amount of support, whether it be real timber or bundles of long reeds tied together in fascines, and it is probable that matting and daub was what was used to fill in the background of the wooden framework of the primitive temples whose aspect was preserved by the panelled face of the later brick wall.

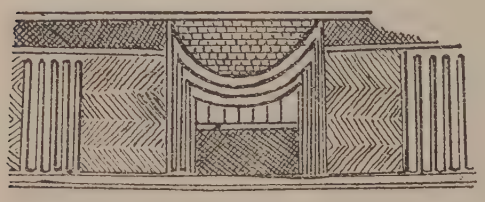


FIG. 26. Sumerian House-façade design, from a stone vase.

In an interesting study of the al-'Ubaid frieze Dr. Legrain[3] illustrates the

[1] Petrie, *Tarkhan*, i, Pl. IX, 6, 7.

[2] Schaefer and Andrae, *Kunst des alten Orients*, Tafel i, p. 212.

[3] *The Museum Journal* (Philadelphia, Pa.), September 1924, XV. 3, p. 151. [The British Museum possesses a fragment of a vase (No. 118275), in green steatite, similarly sculptured on the outside (Fig. 27). This was obtained from Abu Ḥabbah.

design upon a vase from Telloh which is reproduced here (Fig. 26). It represents the façade of a primitive Sumerian building which serves as a link between the hut dwellings of al-'Ubaid and the Nin-khursag temple. The main construction is of half-timber and matting, the gate-tower is of brick: along the base runs what seems to be a bedding-beam, and on this are set the uprights, composed each of several planks or beams (style 3) and connected above by a tie-beam; the panels are filled in with matting quite realistically rendered; above the tie-beam is a crossed-hatched band with another beam framing it on top, perhaps a frieze: the doorway is of wood, apparently with reveals on either side, and the lintel has the crescent shape which we find also in the byre of the inlay frieze; above the lintel comes brickwork, and the change of material and the fact that the reveals of the door are carried up to the top of the line of the frieze, thus breaking up the façade, may be meant to show that the gateway is in a projecting tower.[1] The internal details of the door I do not understand. Certainly this vase design leaves little doubt as to the wooden original from which the panelled brickwork of Sumerian temples is derived, and later on I shall give my reasons for thinking that in A-anni-padda's building we have in one case a survival of actual panelling in wood.

Fig. 27. Fragment of stone vase with relief showing a house. (B.M., No. 118275.)

It is interesting to find that this brick panelling still survives as a feature of local Arab architecture. In Pl. xxxix, 4 is reproduced a photograph (for which I am indebted to Professor R. P. Dougherty) of a shaikh's house in the Muntafiq district, which with its battered walls and panels offers a remarkable parallel to the Ziggurat at Ur.

The projection on the north-west face of the platform (p. 13; Pl. xxv, 1) was a drain intended to carry down surface water from the terrace: it was built of burnt brick, was 2·00 m. wide, and had a total projection from the wall face of 3·35 m.; the front was inclined outwards at a slope of 4 in 7 and had a footing below floor level 0·35 m. high and 0·20 m. wide; down the middle of the sloped face ran a groove or channel 0·40 m. wide and 0·15 m. deep, and the bricks near the face were laid in bitumen instead of mud mortar so as to withstand water action. From the foot of the inclined drain the floor level ran gently down hill, and opposite the drain (see plan; Pl. ii) there were sunk in the ground two vertical drains made of circular pottery pipes with broad rims, placed one on the top of another, the internal diameter of each being 0·47 m. and its height 0·35 m.; the pipes were set in very hard clay. Either these drains were intended to take the water brought down by the chute-

Still another example, on a stone vase-fragment from Adab, is illustrated by Unger, in *Reallexikon der Vorgeschichte*, *s. v.* Kunstgewerbe, Vorderasien, Tafel 168, e. C. J. G.]

[1] Alternatively the cross-hatching might represent some wholly different material, e.g. earth, and in that case we see part of the flooring inside the doorway, and the tie-beam forms the eaves of the building of which by a convention natural in primitive art we are shown the flat roof in elevation; then the gateway, projecting above the line of the eaves, becomes a veritable gate-tower.

drain from the terrace, in which case they must have acted on the principle of soak-pits: or, possibly, they were used for storing the water, and this is perhaps supported by the fact that in them there were found a number of small clay cups (types TO. I–IV; see p. 76), whose presence is more easily explained in a well than in a drain: yet another possibility, which derives support from discoveries made at Ur, is that the pipes were used as channels for offerings, and that the cups found in them are *ex votos* actually *in situ*; should this be the case the association of the stone vase (TO. 285) with one of the ' wells ' suggested on p. 83 would seem much more probable, for the vase is very much of the type of those employed for libations.[1]

The south-east front of the platform is broken by a projecting flight of steps (Pl. XXII). The stair ramp is built of mud brick with no burnt brick facing, the treads are of white limestone resting on a foundation of burnt bricks roughly laid on the top of the mud brick. Seven treads remain; the three lowest are formed each of a single stone 1·95 m. long by 0·25–0·27 m. high, and with a total width of 0·55 m., of which rather more than half was overlapped by the stone above leaving a tread of 0·24 m.; the next three steps were composed of two stones each, a long and a short, the shorter measuring 0·20 m., 0·50 m., and 0·75 m. respectively, and the seventh step was a single stone 1·85 m. long. The ramp had sunk, so that the steps were now tilted backwards: the higher treads were missing, but the mud-brick ramp continued to a height of 1·20 m. above the top of the burnt-brick retaining-wall of the platform, though its surface had been cut back in steps to take the brickwork of the ' Second Dynasty ' terrace. On either side of the stone stairs the mud brickwork of the ramp was carried up so as to form a parapet wall which at the bottom of the flight was still standing over a metre high; in the front jamb of the western parapet there were a few courses of burnt brick roughly let into the mud brickwork at a height of 0·85 m.–1·00 m. above floor level. The floor all along the south-east front ran at 0·42 m. below the base of the recesses in the retaining-wall, and was made of hard-rammed clay overlaid with a thin white coating of clay and lime which had been several times renewed. Immediately in front of the stairs and 0·55 m. from its foot there was let into the floor a square altar made of five courses of burnt brick (shown in Pl. XXII, 2), of which two were sunk below floor level and three rose above it; on a brick almost in the centre of the top layer there was a rudely scratched sign, possibly intended for ✻ (Fig. 28).

FIG. 28. Top surface of burnt brick altar.

A peculiarity of the staircase was the extreme roughness of the side faces of the ramp; indeed it proved impossible to trace the real wall surface at all. The white lime floor, well preserved, ended in a straight line five or ten centimetres away from where the ramp or parapet wall appeared to begin, but even with this pointer to guide us we failed to find any true brick face. Against the

[1] See note at end of chapter.

parapet wall there were traces of wood ash, not in themselves sufficiently numerous to be much of an argument, and at its foot we found quantities of copper nails, sometimes singly, sometimes a whole heap corroded together. The staircase was so prominent a feature of the building, and the use of large stone blocks so distinguished it, that one could not imagine its sides to have been the rudest type of mud-brick walling; that mud brick was a core which must have been masked in some way or other, and since burnt brick was not employed for the purpose, it is necessary to suggest another material which would have looked well, would be in the traditions of Sumerian building, would not have occupied much space (for the interval between the mud core and the floor-edge is small), and could have disappeared, leaving little or no trace of itself. The only material which seems to answer all these conditions is wood. I suggest that the stair sides were panelled with wooden planks and uprights in just that style of which the platform walls show an imitation in brick; the copper nails would come from the panel fastening, and experience proves to us that at al-'Ubaid wood does in fact perish almost entirely even when protected far better than an exposed panelling would have been: in the attempted restoration on Pl. XXXVIII such panelling is accordingly shown.

On the south-west side of the platform there is a much larger projection, itself a platform measuring about 17·70 m. by 8·50 m., built of mud brick throughout with no burnt-brick retaining-wall; in its north-west face, against the wall of the main platform, is the stone staircase found by Dr. Hall (p. 13; Pl. XXV, 2). The stone treads, of which there remain nine complete and parts of three more, are 1·50 m. wide, each made up of two stones set in bitumen; the stones are roughly cut and of poor quality, very different in appearance from those of the south-east staircase, the surface has flaked a good deal, and there is a fair amount of patching; each tread is approximately 0·25 m. deep and the average rise is 0·15 m., the twelve treads giving a total height of 1·50 m. in a length of 2·90 m.

The actual measurements of the platform must remain conjectural, for only on the north-east side where it was protected by the main building did the mud brickwork stand to any height; the line of the south-east side could be fixed by its juncture with the main platform at the point where the retaining-wall of the latter came to a dead end; on the south-west the whole mound had been so denuded that the foundation level ran out above the slope of the modern surface, and I have merely suggested a line close to that at which the last vestiges of brickwork occur and corresponding to the edge of the drain in the west corner. On the north-west the limit I have suggested is based principally on the position of the same drain, the supposition being that this was at an angle of the building, though I must admit that it was not necessarily so; between the drain-head and the steps there were a few traces of both crude and burnt bricks, but these again were not so many or so manifestly intentional as to constitute evidence. On the south-west wall of the main platform the normal panel decoration was only carried 3·70 m. from the west corner, then came a buttress 1·60 m. wide, and then a stretch

of 6·35 m. long running up to the stair's foot, built of the usual plano-convex burnt bricks but with no panelling: it might certainly be argued that this change in the character of the wall is due to its ceasing to be an external wall, that the mud-brick platform extended much farther to the north-west, i.e. to the line of the buttress, which may have been a door-jamb matched by a similar buttress-jamb at the corner of the mud building, and that accordingly there was at the foot of the stairs a passage 6·30 m. long with a door at its outer end; the chief argument against this is the line taken by the drain, for though it is perfectly normal that the drain-head should be contrived in the thickness of the wall, we should expect the channel to lead away from the building at once and not to run under it. The evidence is decisive for neither theory.[1]

The drain itself is quite a remarkable feature of the building. The drain-head is a rectangular basin built, as is the whole channel, of burnt bricks set in bitumen, and is waterproofed with a thick coat of bitumen inside; clearly it is the recipient for a vertical drain, and as a vertical drain implies a roof or a raised platform, the drain must have been either against or in the thickness of the wall supporting the same. From the basin a channel, also waterproofed and covered in with brick, runs for about seven metres along the flat at an angle slightly north of north-west and then turns west down the slope of the hill on which the building stands, but here the channel becomes deeper and narrower, and instead of being straight is taken in an S curve so as to moderate the flow of the water down the incline; then a straight reach leads to a rectangular pit, brick-built and bitumen-lined, sunk well beneath the bed of the channel, which is clearly a sediment-pit, for on the far side of it the outflow channel starts at a higher level than the intake so that only the cleaner water at the top might escape, the pit retaining all impurities; the whole thing is worked out on thoroughly scientific lines and does great credit to the engineers of the period. At a short distance from the catch-pit the drain-channel comes to the modern surface of the ground and has perished. This is unfortunate, for the fact that such pains were taken to purify the water shows that it was not being merely run off to waste but was intended to be conserved, so that the channel must have led to some kind of reservoir of which we found no trace; the ground on this side, owing to the proximity of the canal, has been so thoroughly denuded that anything that may have stood here has entirely disappeared.

As is shown on the plan (Pl. II), the two projections of the staircase and the south-west platform are of crude brick and the burnt-brick retaining-wall of the main platform is not carried through behind these but ends abruptly at the angles of the projecting feature; this in itself is enough to show that the projections are not, as at first sight they might appear, accretions to the original plan, perhaps of later date, but contemporary and essential parts of it: and in process of construction the seeming 'accretions' must actually

[1] In the plan (Pl. II), I have suggested a compromise, the platform ending at the drain but a wall running out from it, continuing the line of the staircase and forming with the burnt brick wall of the main platform a passage which terminates with a doorway at the buttress.

have been built before the retaining-wall, for the clean-cut ends of the wall abut on the face of the mud brick which must therefore have been already in place when the builders started to lay the burnt brick, or at least must have been always a course or two higher than it. There is a simple constructional reason for this. As soon as the platform had reached a height of even a few brick courses above ground level it would be necessary to have against its sides either ladders or ramps by which the labourers could carry up the bricks and mortar for its further building; of the two, the ramp is the more convenient means of access, but generally has the disadvantage that at the end of the work the mass of earth forming it must be carried away again. Now at al-'Ubaid each of the planned projections was, or contained, a staircase supported by an earth ramp, and it would be an obvious economy to keep the building of these a little bit ahead of that of the main structure, so as to have always available ramps which would not have to be removed on the completion of the work. Throughout the period of bricklaying, therefore, the stair-ramps would regularly stand higher than the walls on either side of them.

A curious feature which puzzled me for a long time seems to prove that the south-east stair-ramp at any rate was thus employed in the construction. It has already been stated that at the foot of the stairs there stretched a floor of white lime; digging through this we found brickwork in plano-convex bricks 0·45 m. below the east corner of the altar, and following it up laid bare an inclined plane of brick paving 3·30 m. long with a width of 2·50 m. at the top end by the altar, diminishing to 1·40 m. at the bottom (Pl. XXIII, 1).

The paving lay at an angle to the general lay-out of the building, running east-south-east from the corner of the altar; at the top it was three courses thick, the lower two being irregular and not quite on the same line as the top course, at the bottom there were five courses carried sharply down in so many steps and resting on rough limestone blocks of no great size; the south side of the paving was very irregular, the north side fairly straight and bordered by a double line of bricks one course higher than the rest. The average incline was three in eleven; as the white floor sloped down from the temple foot the differences in the vertical measurements from it to the pavement were less marked than would otherwise have been the case, namely 0·60 m. at the top and 0·85 m. where the inclined plane began to be stepped down at the bottom; the limestone foundations lay 1·50 m. below the level of the floor by the altar. To lay the pavement a sloping trench had been cut through the natural soil of the 'island' site; later this trench had been filled up with clean clay, the brick altar had been built on this made ground, and the lime floor had been spread right over it: obviously then the paving was no more use when once the building was complete. The most natural use for an inclined plane, especially one with a surface smoothly revetted with brick, is as a ramp up which heavy weights may be dragged; heavy stones were employed both for the treads of the stairs and for other purposes in the temple; the brick incline runs up to the foot of the stairway and leads from the low ground where a canal certainly existed at a later date and may well have

existed in the time of the First Dynasty; and the stones had to be imported, and were very probably brought by water: everything therefore points to the incline being a constructional ramp, and that supports the theory that the stair-ramp also may have had its constructional use during the building of the temple.

That the building of the two mud-brick projections went ahead of that of the main platform receives a measure of support from, and may serve at the same time to explain, the striking and surely unintentional irregularities of the plan. It looks very much as if the builders, having the architect's plan in front of them, had started with the big mud-brick projection on the south-west, and from it laid out the two long sides of the main platform, getting them as nearly parallel as could be expected, and had then joined these up at the north-west end with a straight wall, which, if it was not quite at right angles, was not discreditably far from being so. But on the south-west side the long stretch of mud brickwork in the middle seems to have put them out in their measurements, for the wall of burnt brick from it to the south corner of the main platform is made too long, so that the whole south-west side of the rectangle overlaps the corresponding north-east side; and when they came to the south-east face everything went askew. In the first place the stair-ramp is all awry with the rest of the building, perhaps because the builders, starting with this at the same time as with the other mud brick projection, had set it out on the ground in relation to a wall which was still imaginary; or perhaps intentionally so, because there was a canal with a quay towards which they wanted their stairs to face (the brick-paved ramp beneath might lend colour to this theory), and the line thus imposed upon them did not harmonize with the orientation of the building, which was also imposed upon them by tradition, and so they more or less compromised between the two: in any case the stairs are very crooked. When the ramp had risen to a certain height the builders set out the line for the south-east wall of the platform, but the mud brickwork prevented them from pegging down a string from the east to the south corner and even from sighting effectually from one to the other, with the result that the two sections of the south-east wall are neither at right angles to the side walls nor in line with each other; as they would if produced meet just in the centre of the stair-ramp, it looks as if a man had got up on this to give the direction to the two gangs employed in setting out the wall line and, as is almost bound to happen in such a case, had stood not *on* the line joining the extreme points but slightly *behind* it. Any one who has entrusted to modern Arabs the laying out of a ground-plan and has observed the kind of mistakes they make, will realize that the explanations I have suggested for the queerly inefficient appearance of the al-'Ubaid plan are not merely fanciful but probable enough in themselves and have at least the merit that they may help us to understand by modern analogy the simple methods of construction employed on this early temple.

On the north-east side of the platform, 1·10 m. from the containing-wall, there was a rectangle of brick paving two courses thick, of a peculiar character (Pl. XXIII, 2). It measured 3·40 m. × 2·00 m., and lay at right angles to the

wall; a line of broken potsherds set on edge divided it into two parts of which that nearer to the wall was composed of large practically flat bricks (0·30–0·33 m. × 0·21–0·23 m. × 0·04 m.) like those of the second period, fairly well laid but in some cases broken and eked out with fragments, while the farther part had its centre composed of flat bricks of the same type, but these were framed by a double band of the regular plano-convex bricks; the flat bricks were laid with the smooth (under) surface upwards, the plano-convex with the rounded side impressed with the usual finger-prints upwards, so that the two types contrasted sharply and gave to the whole pavement a thoroughly decorative effect; it looked as if the farther part might have been a base for some object which would have covered the plain brickwork in the centre and left the plano-convex showing as a border round it, while the part nearer to the wall might have been a pavement proper whereon people could take their stand for some purpose connected with that object: but what it may really have been there was nothing to show.

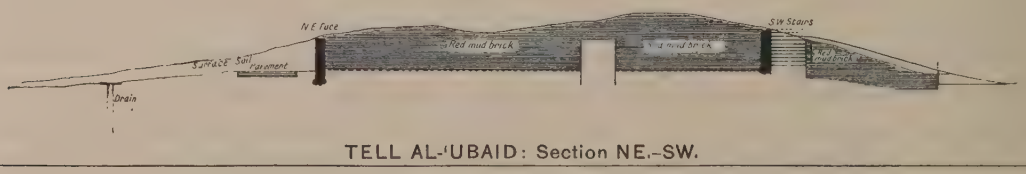
Some six metres away from this there was a second patch of brick paving found broken up and in bad condition, below which was a drain formed of terra-cotta pipes (length 0·35 m., diameter 0·47 m.) running down vertically into the ground; the pavement had presumably formed a square base for some object requiring an escape for water, and one suspects a libation-vessel perhaps of the type of the limestone vase or 'well-head' illustrated on Pl. XXXVI, though it is most unlikely that this itself was associated with the drain in question. Another small rectangle of paving (1·25 m. × 0·70 m.) lay in the angle between the south-east wall of the platform and the north-east side of the staircase, not quite parallel with either; no explanation can be given of its use.

On the sloping ground east of the platform, at a distance of 14·00 m. from its east corner, we found two long blocks of mud brickwork lying parallel to each other, *c.* 2·40 m. long by 1·00 m. wide and 0·60 m. apart, standing *c.* 0·50 m. high; in the top of each block were shallow troughs running from the inner edge of the brickwork back to about the centre line; the insides of these were blackened by soot and the clay burnt to a deep red, and they contained remains of burnt wood or charcoal. The whole thing is the ordinary kitchen range such as one may see in use to-day in any native cookshop of the Near East; here it stands out in the open away from any building, and it is difficult to bring so very domestic an arrangement into any direct relation to the temple. I can only suggest that as the temple of Nin-khursag lay sufficiently far out from Ur for a visit to it to have been a regular excursion, some enterprising caterer set up a restaurant in the temple precincts to supply lunch to pious excursionists! (See Plan, Pl. II, kitchen.)

This completes the description taken from my field notes of the buildings as found; the account of the objects found fallen from the temple, and my deductions from them and from the ruins as to the nature of the temple itself, will occupy separate chapters: here I need add only one remark about the votive cups found in position and associated not with the vanished temple but with the existing platform.

Against the retaining-walls there were found numbers of small clay cups (types TO. I–IV) generally of a greenish drab, sometimes of red ware, set upright on the floor by the wall's foot. Thus on the north-east side, opposite the patch of brick pavement, there was a set of four, a metre away a set of six all together, 0·75 m. from these one intact cup and fragments of others; round the north corner, single cups stood in the angle of the projecting drain and against its side wall, and as has already been stated cups were found in the vertical drains[1] facing the 'spout'. It was the same all round the building. There was nothing to show what these cups had contained, but there could be no doubt that they were put here deliberately as offerings, and the fact that they were sometimes single and sometimes in groups, and were placed irregularly and not at fixed intervals, must be taken to mean that they were not arranged in order by the priests of the temple but were laid down at random by visitors to the shrine as their private and particular *ex votos*. We have not found any such vases of offering against the walls of any of the later temples of Ur.

[1] Certain discoveries made at Ur in the course of the season 1925–6 throw light upon this point. It appears probable that these 'drains', though of the same type as those employed in houses for sanitary purposes, also served in connexion with temples and shrines as channels down which libations could be poured; in fact, that they are a form of *apsu*. The theory cannot be properly discussed until the evidence from Ur is published; here I would only refer to a note by Mr. Sidney Smith in the *Journal of the Royal Asiatic Society*, January 1925, p. 60, where he arrives independently at the same conclusion.



TELL AL-'UBAID: Section NE.–SW.

Fig. 29. Section through the Mound of al-'Ubaid.

CHAPTER V

THE OBJECTS FROM THE TEMPLE: 1923–4

BY C. L. WOOLLEY

JUST as all the objects found by Dr. Hall in 1919 lay in the angle between the front of the platform and what was later proved to be the north-east side of the stair ramp, so the objects discovered by us in 1923–4 lay almost without exception in the corresponding angle on the other side of the stairs. Everything was found underneath the layer of grey brickwork which represented the terrace of the Second Period building, and in the deposit of reddish mud brick fallen from the original temple; really the main distinction that could be drawn was between those objects which lay loose in the debris and those which were attached to the still coherent wall masses, and as a general rule it may be said that the loose objects were either more deeply buried or lay farther away from the platform base than those made fast to the walls. On the plan, Pl. II, the positions of all the principal things found are shown. Near the foot of the stairs we got the foundation-tablet of A-anni-padda, two fragments of inscribed stone vases on which also the name of the king occurs, and the bits of a large limestone vase or well-head ornamented with reliefs. Small fragments of inlay from the mosaic frieze were found in the lowest debris close to the white lime floor level over the whole area between the line of the stairs' foot and a line about five metres from the platform wall; the two practically complete mosaic column shafts lay about five metres from the wall forming with it an angle of some forty degrees; they were one on the top of the other, and immediately over them were two copper-sheathed logs partly oxydized together; a third lay between these and the wall, and a fourth about a metre to the north-east, again five metres from the wall: all were low down in the loose rubbish of broken mud brick which formed the bottom stratum of the deposit on the lime floor. Almost touching the copper-sheathed columns first mentioned was a pile of four statues of bulls in the round, one on the top of the other; they had been broken before being put here, and had been squashed almost flat by the weight of the brickwork which covered them. Two inlay panels of birds, one very much damaged and incomplete, also lay in the deep stratum close to the wall and about half-way along it. The other objects were found at a slightly higher level—or rather, since the word 'level' is really a misnomer where everything was so irregular, it would be truer to say that the other objects, at whatever height they happened to be above the floor, lay higher and not lower than any objects of the classes described hitherto which might be in their immediate vicinity; generally they were fixed to the great blocks of mud brickwork fallen from the walls, and these generally lay face downwards with the objects underneath and therefore not separated by any

depth of earth from those in the upper part of the stratum of broken rubble; sometimes, owing to a wall having collapsed in a different way, they were found relatively high up in the mound. Copper reliefs of reclining bulls were the most numerous, and these were distributed along the whole line of the platform wall; roughly speaking they occupied a belt of soil three metres wide which from the south corner of the platform ran parallel to the wall and two metres away from it and then bent in until in the stair angle it came almost against the wall face. Sections of a frieze with inlay scenes of cattle and men were found between the stairs and the middle of the wall length, fairly close to the wall. Artificial flowers in baked clay and inlay, or fragments of such, were very common in the lowest (loose rubble) stratum, but specimens were found also higher up between the blocks of brickwork with which the reliefs and inlay panels were associated, and these were the only objects which broke the general rule of stratification by occurring in the upper as well as in the lower deposit, but even so it was noticeable that they were most numerous at the top of the loose rubble and therefore immediately below the wall masses.

I have tried here to straighten out what seemed at the time of digging a terrific muddle. The stratification which I have schematized above was by no means obvious until the whole ground had been worked over. Against the foot of the platform wall there was a talus of brick rubbish which was quite unproductive; above this was the productive stratum of similar rubbish, but this had fallen quite irregularly and the natural irregularity was exaggerated by the objects, often large and bulky, which fell with it or upon it: when the main part of the temple wall collapsed the debris at its foot was already all in mounds and hollows, and the great masses which now crashed down fell at all angles and might bury themselves fairly deeply in the more yielding rubble. Had any long period of time elapsed between the formation of the rubbish-heaps at the wall's base and the fall of the wall itself there might have been an intervening layer of clean dirt which would have simplified matters in every way, but this was not the case, and the entire thickness of the soil-belt in which the objects occurred was scarcely more than a metre and a quarter. Consequently when we had cleared away the grey brick of the upper terrace and cut down into the solid mass of red mud brick below which lay the antiquities (and I have already described how laborious a task this was) and these gradually came to light, they seemed to be strewn at random and in the most inextricable confusion: the whole area (see Pl. XXVI) was a welter of objects in copper, inlay, or mosaic which lay over and under one another or touching each other, upside down or anglewise or right side up, at varying heights and depths, but so far as one could observe at the moment not consistently so; it was only later, when there was leisure to compare the field notes on the individual reliefs or columns or what not and to set in order the impressions received when removing each, that one could generalize at all from the observed facts and find reason in the apparent chaos. Just as in the course of the excavations the vertical measurements from the floor or from the ground surface to any particular object seemed to give

no results worth having, so would it be with any printed record of figures, and indeed figures without such a reproduction of the conditions as neither words nor drawings could supply would be more misleading than instructive; I shall therefore content myself with the general truth stated above, that the objects which had been attached to the wall face (with the exception of the bird panels) were still for the most part so attached and lay as a rule under the wall masses but above the loose debris which represented the first fall of building material from the temple structure, whereas objects which had not been fixed to the brickwork were found in the upper layer of that loose rubble if near the platform or simply in it if farther away, and so formed a stratum which however much overlapping because of its irregularity was yet distinct in character from that to which belonged the objects of the former class. This general relation of the objects to one another, and their position relative to the platform as shown on the plan, will prove of the greatest importance when in Chapter VI we attempt to assign them to their places in the scheme of temple-decoration.

The methods employed for extricating and preserving objects so delicate as were many of those found may be of interest to other archaeologists who may be faced with similar difficulties, but these were better discussed in connexion with the individual pieces concerned: in every case the means had to be adapted to the particular circumstances, and they were of course limited by the materials at our disposal, for whatever provision he may make the field worker cannot enjoy the facilities of a laboratory, and at al-'Ubaid we were working at a considerable distance from our base and that base itself was far from the resources of civilization. On the whole we were I think remarkably successful in salving antiquities whose condition seemed at first sight well-nigh desperate, and though our methods might of course be improved upon, they may none the less prove a useful guide to other diggers.

In the following catalogue objects similar in kind are grouped together for purposes of general description, but the catalogue numbers of the field index are given with such notes on the individual specimen as seem necessary; the letters B, L, and P denote the present whereabouts of the object—in Baghdad, London, or Philadelphia. Certain objects, e.g. clay tablets, are at present (1927) unassigned.

Inscribed Objects

TO. 286. Hollow gold bead of scaraboid form, 0·015×0·012 and 0·010 m. high, inscribed on the upper (convex) face with the name and title, in archaic script, of A-anni-padda, king of Ur. See Ch. VII, p. 127, Pl. XXXV, 2; XL. (B.).

The bead was made over some kind of core which has disappeared. Though the form is best described as scaraboid, this does not of course imply that it is derived from the scarab; it is distinguished from the Egyptian scarab in having the inscription on the convex instead of on

the flat under-surface. It was found in the red brick rubble near the bull relief which lies closest to the angle between the platform wall and the stairs, but its exact position could not be fixed. The bull in question had been prepared for removal, and as bad weather was threatening the last stages had to be got through against time, and in cutting away the hard earth from behind and beneath it we were obliged to dislodge and throw aside large lumps of brickwork without paying much attention to anything but the freeing of the figure. The bull was lifted at sunset, and half an hour later there came torrential rains which turned the site into a morass and made digging impossible for several days. The following morning one of the men who had been working at the spot waded to it to see the state of the hole and remarked something glittering on one of the lumps of brick tossed aside by us and now disintegrating with the water ; this was the gold bead. It is pleasant to record that the man at once started to run through the four and a half miles of deep mud and water which stretched between al-'Ubaid and Ur in order to bring the precious object to me without delay.

TO. 160. White marble foundation-tablet in the form of a plano-convex brick having a sharply convex reverse with a depression in the centre. Obverse inscribed with seven lines (extending on to the bottom and right edges) of very archaic script recording the building of a temple to the goddess Nin-khursag by A-anni-padda, king of Ur. 0·092× 0·058 m. Found near the south corner of the ramp of the main stairs well above floor level and in broken grey brickwork of the Second Period. See Ch. VII, p. 126 ; Pl. XXXV, 5 ; XL. (L., B.M. No. 116982.)

TO. 159. Fragment from near the rim of an alabaster vase preserving parts of six lines of an archaic inscription. 0·083×0·065 m. Found near stair-foot close to TO. 160. See Ch. VII, p. 126 ; Pl. XL. (B.)

TO. 219. Fragment from the rim of an alabaster bowl with traces of inscription in archaic characters ; perhaps belonging to TO. 159. 0·033× 0·011 m. Found in front of the bottom tread of the stairs. See Ch. VII, p. 126. (B.)

TO. 220. Small fragment from rim of alabaster bowl with parts of three lines of archaic script, perhaps same as TO. 159, 219. 0·05×0·022 m. Found in front of the bottom tread of the stairs. See Ch. VII, p. 126. (B.)

TO. 287. Fragment from the rim of a large black diorite bowl bearing six lines forming the end of an inscription in archaic characters which commemorates the sinking of a well for King A-anni-padda by a certain Ur-Nannar. 0·139×0·095 m. See Ch. VII, p. 126; Pl. XXXVI, 1 ; XL. (P.)

TO. 304. Fragment from the rim of an alabaster vase with remains of two lines of inscription in archaic characters. 0·051×0·027 m. See Ch. VII, p. 127. (B.)

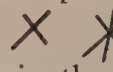
TO. 374. Seal impression on clay. Fragment, showing part of an impression of a cylinder seal with design in two registers. Above, human figures with trees (?) between them ; below, one seated and some standing human

figures, perhaps a presentation-scene. Sealing 0·034 m.×0·045 m. Found in the upper soil at the foot of the talus against the south-east face of the platform. (B.)

TO. 375. Seal impression on clay. A lump of clay, apparently part of a jar-stopper; on it remains of two impressions from cylinder seals, much blurred but seemingly from the same seal. The design is in two registers, above, standing human figures; below, an animal, &c. (?). Found in the upper soil at the foot of the talus against the south-east face of the platform. (P.)

TO. 221–5. Five fragments of clay tablets or jar-stoppers with remains of inscriptions in archaic characters. All were found together embedded in the grey brickwork of the Second Period terrace close to the middle of the retaining-wall of the platform and above the level of its burnt-brick courses; they had obviously been tumbled in as filling at the time of the building of the second temple. (Pl. XL.) See Ch. VII, p. 127.

TO. 259. *Artificial flowers*. The stem and calyx are of baked clay, the former in the shape of an elongated cone, the latter slightly concave, with its rim scalloped into the form of an octagon with curved sides and a hole in the centre which runs down into the stem. The total length of the flower varies from 0·25 to 0·37 m., and the calyx averages 0·115 m. in diameter. In many cases, but not in all, there are near the point of the stem two pointed knobs projecting like small buds; always near the point there is a hole pierced through the stem large enough to take a string or wire, and three or four centimetres below the calyx there is a nick or groove cut in the clay at right angles to the length of the stem. The petals and corolla are inlaid, of the eight petals four are of white limestone, two of pink stone, and two of black bituminous shale, and the corolla is either of the white or of the pink stone; the corolla, which is long and pointed, was let into the hole in the centre of the calyx and made fast by a copper wire which went through a hole at the thin end of the corolla and through another hole in the flower-stem, coming out just where is the nick already mentioned, and was then bent upwards for security: since it was about six centimetres long the corolla projected well above the plane of the calyx, and round it was put a mass of bitumen mixed with earth which completely filled the hollow of the calyx and served as a bedding for the petals, the inner points of which were flush with the flat top of the corolla while their outer ends rested on the edge of the clay calyx; the flower-head was therefore convex. Each petal had in its lower surface two holes bored to meet at an angle, and through the loop thus made ran a copper wire which, passing through the mass of bitumen and through holes in the calyx, was made fast on the under side by twisting. The petals were always arranged in a cruciform pattern.

In some cases there were upon the stems incised marks made before the clay was baked, thus,  ; in a few, traces of copper wire could be distinguished in the hole through the bottom of the stem. Some fifty specimens of the flowers were preserved, and fragments of many more were found. Of the fifty examples, five had their stems complete and unbroken, twelve had the stems broken but all the fragments of them were found, and all the other stems were incomplete: the majority of the calyces were either complete or merely chipped at the edges and only a very few were reconstructed from fragments. In all cases the wires attaching the petals had decayed (though parts often remained) and the bitumen had become powdery and non-adhesive; in six all the original petals were preserved in position and it was possible, by hardening the bitumen with wax, to keep the flower intact, but only in eighteen others did any original petals remain, and in these the survivors had to be eked out by petals found loose in the soil; the other flowers were reconstructed entirely from loose petals. Pl. XXX, 1.

Nos. TO. 259 A–Z and AA–RR. Divided between the three museums.

TO. 285. *Primitive Stone Reliefs*. Upper part of a limestone vase (?) or well-head (?) decorated with figures in relief (Pl. XXXVI, 2–6). Reconstructed from fragments, the upper part imperfect and the whole of the base missing; height at present, 0·28 m., exterior diameter, 0·27 m., interior 0·19 m., decreasing at bottom to 0·10 m. The stone is of poor quality and badly weathered, so that much of the detail of the carving is lost. A raised rim 0·09 m. wide runs round the outside of the vessel and on this is a scene rendered in *relief en creux*; the lower scene is carved in true relief on the main part of the face and consists of four figures of which only the upper parts remain. The subject of the principal scene is clearly the presentation of a worshipper to Nannar; on the left we have the head and shoulders of the god, who wears what looks like a flat cap having a tassel behind but is probably hair; he has no beard, and his right shoulder, which is all of the body that remains, is bare; behind him are a bird and a crescent. The other three figures face the god. In front is a man clean-shaven and wearing a cloak thrown over the left shoulder; the second man has a similar cloak which is, however, better preserved and shows the heavy double roll of the edge and the transverse folds of the fabric falling over the arm; in both these figures there is at the back of the head a tuft which may be a tassel from a cap or may be a lock of hair; in the second figure a dotted line across the top of the head must represent either ringlets or the edge of a cap, a detail which in the first figure cannot be distinguished; it is probable, in view of the fashion which we see in the stela of Ur-Nammu,[1] that this is meant to be the hair tied in a ' bun ' at the back of the head, and in that case the same must be true of the Nannar figure: an incised line across the cheek of the second figure may be intended to

[1] Compare also TO. 316 and the well-known head of Eannatum on the Stele of the Vultures.

represent a close-cut beard. The third figure is on a much smaller scale; the head is missing, the body preserved as far down as the knees: the arms are raised in the attitude of prayer; across the body falls the same heavy cloak as is worn by the two men in front.

The upper scene is on a smaller scale and the figures are separated from one another, the ground being cut away round each only sufficiently to show up the relief without making a continuous sunken panel. The subject is a procession of worshippers (Dr. Legrain in the *Museum Journal*, xv. 3, p. 161, suggests shepherds and their dogs): in front is a figure of which the upper part has disappeared, if indeed it was ever carved, for the work seems to be unfinished; all that can be said of him is that he wears a skirted garment and faces to the left as do the other figures following. The second is a beardless (?) man wearing a skirt and a cloak over the left shoulder, the right hand is extended in front of the body, and the left, against the breast, holds a curved stick or lituus; behind him is an animal, apparently a dog (?), standing on a raised base. Behind him is a similar figure in which the tuft at the back of the head is much more obvious: the upper part of the body seems to be bare, but a skirt is worn which the double row of flounces shows to be the traditional ' kaunakes ' of sheepskin. Then comes a group of two men and a dog (?), the latter again on a raised base: the front figure wears the kaunakes and above his extended right arm there is a spouted vase with a pointed base; the second man, similarly dressed, carries in his left hand, over his shoulder, what seems to be a club, and in his right hand a palm-branch which he holds over the head of the animal. It appears to me possible that the two animals are not real dogs but cult statues on pedestals.

The style of the reliefs in its primitive rudeness contrasts markedly with the technical excellence of the shell inlay bulls and might seem to belong to a much earlier age, but it is far more probable that we have here merely an example of bad but contemporary workmanship, a votive object ordered by a private citizen from an ordinary mason's shop as against the masterpieces produced by artists in the royal employ. The use of the object is uncertain. If it were a vase, then its depth in proportion to its diameter would make it one of those tall and slender libation-vessels which are represented on the Ur-Nammu stela, or rather an earlier form of such; against this is the fact that the rim of the vessel is worn down irregularly into a series of broad shallow grooves such as result on well-heads from the constant wearing of the ropes by which the bucket is let down; supposing that to be the case, one would be tempted to associate the carved stone with the inscription on TO. 287 commemorating the sinking of a well by Ur-Nannar and so to obtain an authorship for the reliefs. But the diameter of the bore is very small for a well: the stone might perhaps fit one of the pipe-drains of which we found three close to the platform, the diameter of these being 0·47 m., and if the theory which I have put forward on pp. 70, 76 be correct, namely

that these pottery drains were a form of *apsu* down which libations were poured and offerings made, then TO. 285 would certainly seem in place as the head of one of them, for the shape, granted that the original stood considerably taller and that we possess only the upper part, is just that of the slender vases into which libations are poured, e.g. by Ur-Nammu on his stela (*Antiquaries' Journal*, v. 4, Pl. XLVIII) and on earlier reliefs found in 1925–6 at Ur. (L.; B.M. No. 116759.)

TO. 321, 427. *Copper statues in the round of standing bulls.* (Pls. XXVII, XXVIII.) The animals stand with all four legs on the ground, the head turned sharply round over the left shoulder.

The process of manufacture of these, which with the similar objects found by Dr. Hall are the earliest known statues in metal, is interesting. The body was first carved in wood, a mere trunk without head, legs, or tail; these were made separately and fixed to the body by mortising, the tenons being secured with long copper bolts or, in the case of the head, by a bolt of hard wood. Then this core was given a thin coating of bitumen and over it were hammered plates of thin sheet copper, the head and the legs first, the sheets being cut to shape with enough spare to secure an overlap and the edges of the metal made fast to the wood with rows of copper nails; then the body was covered in a similar fashion, the copper being brought up over the edges of the sheathing of legs and head and again nailed down to the core; the tail was probably done in the same way but no actual trace of the fastening was remarked; the ears were made separately of copper sheet and affixed to the finished animal; the horns had wooden cores, but I could not discover whether they were added after the sheathing of the body was complete or had been fixed to the original wooden body in the first stage, as in all cases the horns had been broken off. Copper bolts in the feet showed that the bull had stood upon a wooden base.

There were four of these bulls lying piled one on the top of another in the looser debris in front of the wall, about thirty centimetres above floor level and immediately below the masses of fallen wall (Pl. XXVI): all were in a deplorable condition and clearly had been wantonly smashed up before the collapse of the building and the slow process of decay had almost completed their destruction. Of the uppermost animal there remained only one leg and a fragment of the flank—enough to identify it and no more. The second was headless but otherwise better preserved, but I failed to remove it.

The third in the pile was TO. 321, and under this lay TO. 427. The method of removal was that the upper surface of the animal was first cleared, the earth being scraped away so far as the condition of the copper allowed, and the metal, after it had been left exposed for a while to harden, was liberally treated with boiling paraffin wax and then plastered all over with medical bandages dipped in hot wax

which adhered to the already waxed surface and, hardening as they dried, kept the fragments of metal in place. For not only was the copper so completely oxydized that when first exposed it could be in many places brushed away in the form of powder, but, at an earlier stage, as the wood decayed the metal sheath was crushed in by the weight of the earth above and cracked into countless morsels, and even when contact with the air had to some extent solidified the copper oxide this remained in separate small pieces only too easily dislodged. When the upper surface was securely bandaged we started to undercut the sides of the body, waxing and bandaging as we went; for the legs we began with the hoof, clearing up underneath about half an inch at a time and working the waxed bandages round the leg and round a wooden splint which had been waxed to the flank and supported the limb as the earth support was removed. When it had become impossible to work any further under the body, pieces of sacking were cut to shape and after being dipped in boiling glue were laid over the whole animal and pressed down against it so as to fit as closely as might be; several layers were applied, and these when dry made a tough and rigid casing to support the metal through the next stage and to serve as packing for the journey to England. The next stage was to cut away the earth round the statue until this stood isolated on a column of soil thirty centimetres or so high, its shape being that of the object resting upon it, but tapering below as much as was deemed safe; then a sheet of iron sharpened along one edge was driven horizontally through the column at its thinnest point and the whole mass of animal and earth was lifted on this and carefully turned over on to a board deeply padded with raw cotton; as it rested thus the earth was scraped off the untreated side, now uppermost, and the process of waxing and bandaging was repeated and more glued sacking applied to complete the outer case, and the bull was ready for transport. In the Museum laboratory, where the work of restoration took place, the inside of the animal was treated first. All round one side a strip of the sacking and bandage about half an inch wide was cut away and the metal thus exposed was cut through; owing to the mixture of cuprous and cupric oxide this was difficult, and we employed saws where possible and in other places a sharp-edged carborundum wheel on a dentist's drill; we were thus able to lift off the whole of the bull's flank in one piece held together by the casing and to get at the interior. The decayed wood and infiltrated clay were removed and the metal cleaned and treated with a solution of celluloid to prevent further oxydization; then a layer of wax a quarter of an inch thick was spread over the whole surface and bandages affixed where necessary; a skeleton of wood was introduced piecemeal and fastened together when in position with glued string (the bits of the tail were strung on copper wire), and round this was worked a hollow plaster-of-paris body. After a month's work of this sort the outer casing was taken off and we could see the result. Sometimes small bits of the metal had been crushed right in, and here was seen the advantage of

the wax layer on the inside, for by using heat the bit could be lifted out, the wax packed up to the right level, and the metal returned to its proper place; also it was now possible to clean the surface more thoroughly. Holes were filled in with a mixture of china clay, silicate, and copper oxide, and the flank of the bull was stuck back on to the body after being backed with wax and muslin, and the restoration of the animal, except for any actual additions which had to be made in plaster, was complete.

TO. 321. The whole of the front of the body has been crushed in flat and could not be rounded out again: the muzzle also has been flattened. Restorations in plaster are, one horn, a section in the middle of the tail, and part of the modelling of the hooves. Total height, 0·62 m., length overall, 0·62 m. Pl. XXVII. (L., B.M. No. 116740.)

TO. 427. The body is much better preserved than is that of TO. 321, but the head was missing and has been restored in plaster from that of the companion piece. The left front leg had been broken off anciently and was in very bad condition, beyond all possibility of repair, and it has therefore been replaced with the corresponding leg from the bull which we were unable to salve; the hooves also and part of the tail have been patched with plaster. Total height 0·62 m., length overall, 0·62 m. Pl. XXVIII. (P.)

TO. 260–9, 291–7. *Copper reliefs of bulls from a frieze.* (Pls. XXIX–XXX.)

The animal is shown as reclining but in the act to rise, the hind legs and one front leg being doubled under the body and one front leg free in front of the body with the hoof planted on the ground and the knee bent; the body is presented in full profile and is in relief, more or less high, against a plain metal background, the head is turned sharply round over the shoulder so as to face the spectator[1] and is in the round; the tail passes between the legs and is brought up round the quarter. The bull is a young animal with budding horns and a dewlap less heavily developed than in the case of the standing bulls last described.

The basis of the relief was a wooden board 0·23 m. wide and with a length of about 0·75 m. (this was not constant) on which the body of the bull was carved complete in all its details but without a head; the head was hollow-cast in copper (the ears form part of the casting) and the hollow was filled up with bitumen into which was let a stout wooden peg which was further secured by a copper nail driven vertically through the neck: the projecting end of this peg was fixed into a hole drilled in the flat surface of the neck of the wooden relief. Then the surface of the relief was given a thin coating of bitumen (the object of this is of course to deaden resilience and facilitate the hammering on

[1] [Compare the attitude of the bulls on the silver vase of Entemena from Telloh (Louvre), and the out-turned heads of the lions on Mesilim's mace-head, also of bulls on certain vase-fragments (Nos. 115313, 116704, 116705), and of lions on a mace-head from Sippar, in the British Museum (No. 92681). C. J. G.]

of the metal), and over it was laid a piece of thin sheet copper some four centimetres wider and longer than the board with a hole cut in it where the head was to come; this was beaten down on to the relief until all its details had been brought out, and the projecting edges of the metal were bent over the edges of the wood and secured with copper nails; where the hole had been cut for the head the edges of the sheet metal were hammered up so as to overlap the base of the casting and were nailed down to the wooden stump of the neck. In this way a complete section of the frieze was produced. To fix it to the wall, two holes were bored, one above the other and about 0·11 m. apart, through the plain part of the background, going through metal and wood; a stout copper rod, square in section (diameter 0·011–0·016 m.), was passed through this and bent so as to lie flat against the front surface, while behind it was twisted into a double loop, the first loop next to the back of the plank being necessarily vertical, the second horizontal, the total projection being 0·012 m. and upwards (Fig. 30). The frieze was fixed to the wall face during the process of construction; when the wall had reached the requisite height the section of relief was laid against its face, the vertical loop of copper passed through a vertical bond in the brickwork and the horizontal loop rested on the top of a finished course, and through it there was driven a wooden staple which went well into the brickwork below and above and so made it impossible to remove the frieze without destroying the wall: remains of such wooden pegs were found *in situ*.

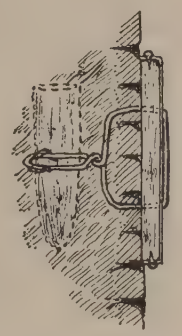


FIG. 30. Section showing copper-rod fastening of bull frieze to wooden backing.

The precise methods employed for the removal of the sections of frieze were dictated by the conditions of discovery in each case. Where the mass of brickwork to which each was attached by its holdfasts (but now loosely attached owing to the disappearance of the intervening plank) had so fallen that the relief lay more or less face upwards, the process was the same as with the bulls in the round; then, when the clay and the carbonized wood had been cleansed from the back, this was treated with celluloid and the relief either filled in directly with plaster or, where its bad condition made this inadvisable, mounted on glued canvas for subsequent repairing: when the panel lay face downwards, as was more often the case, the back had to be treated first; it was waterproofed with celluloid and then waxed and bandaged, and backed with either sacking or plaster; thereafter the face could be cleaned and was generally left exposed, at any rate until the time arrived for transport to England, where the final cleaning and restoring was done.

TO. 260. Complete panel. The bull faces to the left; the background is broken away along the curve of the rump behind, but in front is preserved to its original edge where it was bent over the board; one holdfast left in front of the animal. Height 0·23 m., length of fragment 0·68 m., length of relief 0·56 m. Pl. XXIX, 3. (B.)

TO. 261. Complete panel found in two pieces, broken across the middle of the body but fitting together and restored. Head left, body in unusually high relief. Holdfast at each end. Height 0·23 m., total length of panel 0·89 m., length of relief 0·48 m. Pl. XXIX, 1 and XXX, 3. (L., B.M. No. 116743.)

TO. 262. Complete panel, but a good deal damaged. Head right. Holdfast at each end. Height 0·23 m., total length of fragment 0·75 m. Pl. XXIX, 2. (B.)

TO. 263. Only the lower part of the body found. (L., B.M. No. 116752.) L. 0·55 m.

TO. 264. Head only, from one of the bulls of the frieze. Height 0·11 m., width 0·15 m., depth from muzzle to back of head 0·07 m. Pl. XXX, 2. (L., B.M. No. 116746.)

TO. 265. Head only. Lower part of right cheek slightly chipped. Measurements as TO. 264. Pl. XXX, 2. (B.)

TO. 266. Bull relief with head to the right; only the upper part of the body is at all well preserved, with the head; the lower part has been crushed up together by the weight of the falling wall. When found this relief was joined up in one strip with Nos. TO. 267 and 268, in that order, TO. 266 being in front; the figures were upside down and on a slant with the feet uppermost: all had suffered similar damage. The strip had to be cut into three for purposes of removal. By this was a piece of plain copper frieze 0·50 m. long. Height 0·23 m., present length of fragment 0·70 m. (P.)

TO. 267. Complete figure of bull, head facing right, but the body has been crushed vertically together so that the legs and lower part of the body are distorted; originally in one piece with TO. 266 and 268. Height (originally) 0·23 m., total length 0·82 m. (P.)

TO. 268. Figure of bull with head facing right, but the body has been broken across diagonally from the right fore knee to the rump. Originally in one piece with TO. 266 and 267. Original height 0·23 m., length of fragment 0·70 m. (L., B.M. No. 116751.)

TO. 269. Figure of bull complete with head to right, but in bad condition; the background above the body is missing, complete in front of the head. Original height 0·23 m., present length of fragment 0·75 m. (L., B.M. No. 116744.)

TO. 291. Figure of bull complete with head facing right; in fairly good condition, the right bottom corner of the panel with the hoof of the bull had been broken away, but the fragment was found and restored to its position. Holdfast at each end of panel. Height 0·23 m., length of fragment 0·70 m. (L., B.M. No. 116745.)

TO. 292. Figure of bull complete with head facing right, in good condition. Holdfast at each end of panel. Height 0·23 m., length of fragment 0·80 m. (P.)

TO. 293. Figure of bull complete with head facing right, in good condition but heavily encrusted with earth and lime. Holdfast at each end of panel. Height 0·23 m., length of fragment 0·70 m. (P.)

TO. 294. Figure of bull, the body complete but the head, which had been facing right, missing; TO. 297, which was lying close to the relief, may well belong to it and has been restored as such. The body is in fairly good condition. Height 0·23 m., length of fragment 0·60 m. (P.)

TO. 296. Head of bull from the frieze. When found it was lying with but broken off from its relief body, but the latter was so bent, smashed, and impossible of restoration that no attempt was made to preserve it. Width across the ears 0·15 m., from forehead to muzzle 0·11 m. (P.)

TO. 297. Head of bull from the frieze. Found lying close to TO. 294, to which it probably belonged. Width across ears 0·16 m., back of head to muzzle 0·11 m. (P.)

TO. 278, 279, 288, 299–313, 316–19, 376, 406, 422, 433. *Fragments from an Inlay Frieze of Men and Animals.* (Plates XXXI–XXXIII.)

There were found several more or less complete panel-sections and numerous scattered figures and fragments from a second frieze which had ornamented the façade of the temple, a frieze in a kind of mosaic with white figures (or possibly some of them were originally coloured, but if so no traces of any paint remained) against a black background. The subject was pastoral, and the extant remains include a scene of milking cattle and storing the milk, rows of bulls (or cows ?) advancing in file, and scenes with mythological animals.

The figures are sometimes in limestone and sometimes in shell, the two materials not occurring together on any one of the connected pieces of frieze which have been preserved, but used, so far as we can tell, indiscriminately. The employment of the two materials involved a certain difference of technique, for the thin slabs of white limestone from which the figures were to be cut could of course be produced in fairly large dimensions, whereas the tridacna shells out of which the others were made would yield only small pieces of the thickness and the flatness required; consequently the limestone figures are made each in a single piece, while the shell figures are made up from a number of bits, the bodies, heads, and legs of the cattle being carved separately and fitted together. Another marked difference is in the treatment of the relief. The stone figures are little more than silhouettes, the surface indeed slightly rounded from edge to edge so that on a narrow piece, e.g. the leg of a bull, there is an effect of low relief, but the wider surfaces are flat with only the sketchiest of detail and no internal modelling; the rough appearance of the stone figures is in part due to the comparative coarseness of the grain, and the decay of the stone has accentuated this, but even the best preserved examples have an air of poverty and heaviness. The shell on the other hand, with its very much finer grain and the polish of its surface, naturally lends itself to more finished workmanship, and the Sumerian artist did not fail to do justice to his material; the figures which at first sight look like silhouettes are found on closer examination, or when seen in an oblique light, to be most delicately modelled in the lowest of relief. I suggest elsewhere that all these differences might be explained by the assumption that the limestone figures were intended to be painted and the artist relied upon the colour for all detail, whereas the shell was to be left plain: but however that may be, the fact remains that the shell is infinitely better worked than the stone.

The foundation of the frieze was a wooden board 0·22 m. wide; the centre was countersunk, or else battens were fastened along its edges producing the same effect, so as to leave raised borders 0·04 m. wide and about 1 cm. high along the top and bottom. Narrow strips of sheet copper were laid along these and bent over the edges and secured along the outside by copper nails driven into the thickness of the board. Copper holdfasts exactly like those used for the copper reliefs of bulls were let through the board at intervals of 0·50 or 0·60 m. Then the sunken ground between the borders (which was 0·14 m. wide) was liberally coated with liquid bitumen or, for limestone inlay, with lime, laid so as to correspond to the shape of the piece, with bitumen in the interstices for the shale, and the pieces of the mosaic were pressed against this as a bedding, the figure pieces being applied first and afterwards the background, which was made up of bits of black bituminous shale already cut to shape so as to fit round the outlines of the figures, the surface flat, and the edges not rounded off. Every tessera, whether

of shell, limestone, or shale, was loop-bored behind and through the loop was passed a piece of copper wire which was twisted into a ring; this, being pressed into the soft bitumen, which closed in round and through the ring, formed a holdfast securing the tessera against any possibility of falling away from its backing.

Sections of this elaborate inlay were found in remarkably good condition. The board had of course decayed utterly, and the bitumen had disintegrated into powder and small lumps, which lacked all cohesion and retained no hold at all upon the tesserae, and the copper wires also had oxydized away and could no longer play their part in keeping the pieces in place: but even so, in not a few instances, the tesserae retained their positions in the ground, and by pouring liquid wax over them the whole could be lifted as a complete section of the frieze. Generally such sections had been distorted by the weight of the earth above them after the decay of the wood had set in, and therefore it was necessary to take them to pieces and fit them together again in the laboratory, setting the tesserae in plaster on a new wooden back; but TO. 299, which was lying face downwards in the ground and so could be treated first from the back, the original bitumen being hardened with wax and a new plank waxed on to this, was kept exactly as found and not a single piece of it has been restored or re-set with the exception of the body of the hindermost animal which had started from its place and lay about two centimetres away, broken into three pieces. On the other hand, owing (as will be made clear later) to its position high up on the wall face, much of the frieze had been smashed to bits in its fall, and we found isolated figures, often broken, and single tesserae all over the floor area; most seemed to belong to the same composition, but two or three which by their larger scale may have come from a separate frieze are therefore dealt with apart.

Certain limestone sections were quite differently made, for instead of the figures being cut in outline and set against a black background of mosaic, they were carved in relief and the solid background of the stone itself simply blackened in with paint; the effect therefore was the same, but the technique altogether changed. But these pieces were included in the same frieze; the only complete example, TO. 288, was lying against TO. 299 and had obviously been attached to it, although now broken away; the fragment TO. 316 is similar in scale and treatment to the milking-scene, TO. 303, and again the fragment TO. 376 is from a replica in shell mosaic of the solid limestone plaque TO. 288.

The discovery at Kish of fragments of inlay panels with figures in limestone, shell, and mother-of-pearl shows that this technique was a favourite one with the early Sumerian artists; but in the complete frieze-sections from al-'Ubaid we have proof of the astonishing development of this particular branch of art and of its great decorative value. The hollow casting of the heads of the cattle in the copper relief showed a mastery over the more difficult processes of metal-working which

nobody would have suspected at so early a period of Mesopotamian history; the inlay panels make it clear that in other directions art was no less advanced, and both the easy realism of the drawing and the exquisite finish of the relief in detail prove that high conception and skill in execution went hand in hand under the First Dynasty of Ur: behind these works of art there must have been a very long and a fine tradition, and we have yet to discover objects belonging to later periods in the history of southern Mesopotamia surpassing in quality the handiwork of these ancient and nameless craftsmen.

TO. 303. Section of inlay frieze with limestone figures set against a black shale background, complete with copper borders. Height 0·22 m., length 1·15 m. Pl. XXXI. (B.)

When found the fragment was lying almost at right angles to the wall, face downwards and tilted with the feet of the figures uppermost. There was no firm backing left, but behind the stone inlay was a thick bedding of lime, which had to be removed to get at the figures and fix them in position, and behind the tesserae of the background the remains of the bitumen also had to be removed: thus the back of the panel was brought to a level and it became possible to wax a plank on to the pieces in position. Two copper holdfasts were likewise taken from the back of the fragment. The whole section was badly buckled, both the ends twisted backwards, and in consequence much of the inlay had been slightly shifted from its position and the end figures had been broken and parts of them were missing altogether (Pl. XXXI, 1). Pl. XXXI, 2 shows the object in the condition in which it was found, after being lifted from the soil and cleaned as far as might be in the field. In Pl. XXXI, 3 the same panel is shown after its treatment in the laboratory; all the figures and the tesserae of the background have been lifted and replaced on a new board, the scattered bits returned to their places, missing parts restored in plaster, and the border treated and straightened and put back.

The scene represented is of extraordinary interest. On the right are two groups each consisting of a calf, a cow, and a man milking the cow; the calf is muzzled so that it may not suck and stands facing the cow and tied to it by a halter round its neck; the man squats under the cow's tail holding a tall slender milking-vessel between his knees, a position which appears to us very awkward but is still employed by some of the tribes of Mesopotamia and must have been common in the country in ancient times judging by similar representations elsewhere; we found at Ur a limestone relief of the period of the Third Dynasty of Ur in which the same scene occurs, there is a similar fragment in the Louvre, and we find it on certain early seal-engravings showing the milking of goats,[1] and a fragment of inlay from Kish shows a man milking a cow also from behind[2]: it is quite possible that the Kish mosaic reproduced

[1] Ward, *Seal Cylinders of Western Asia*, Figs. 391, 392. The whole question of this dairy scene has been discussed by Dr. L. Legrain in the *Museum Journal* (Philadelphia), xv. 3, and I draw freely upon his article.

[2] Langdon, *Kish*, Pl. XLII.

with modifications the whole of the al-'Ubaid scene. Next there comes a representation of a cattle byre, a structure or palisade built of reeds fastened together by bands of rope and having in the centre a doorway with spears set against the jambs on which are loops or buckles of rope (?), and above its lintel a panel topped by a crescent; from the door issue two heifers of which only the fore parts are rendered. On the other side of the byre there is a group of four men, all hairless and clean-shaven and wearing the flounced skirt or 'kaunakes' which is fastened round the waist and leaves the upper part of the body bare; both the shape of the heads with the big nose and the small but prominent chin and the heavy proportions of the squat bodies are exactly that to which we are accustomed in early Sumerian art. The man on the left holds upright in front of him a large vase with pointed base and plunges his left hand into it as if scooping up its contents; the next man holds in his arms a long slender pot from which he pours a liquid through a strainer or funnel held by his companion into a straight-sided spouted vessel which stands on the ground below; his companion faces him and holds the funnel out in both hands; behind him on the ground is an object which Dr. Legrain interprets as a rectangular stool on which the man is seated, but the man is undoubtedly standing up and I suspect that the object is rather a stand for a vase upon which it could be rested while the contents were being poured out. The last man is seated with his back to the byre on a square stool and between his knees he has a huge pottery store-vase which is tilted forwards over the pot-stand already mentioned as if to facilitate something being poured into it: the store-vase has a small opening with well-marked rim, a band of rope ornament round its shoulder, and a bluntly pointed base. In view of the pastoral nature of the whole scene there can be little doubt that in this group we have the next stage in the process of which the first stage is given by the picture of milking on the other side of the byre, namely the preparation and storing of that 'samn' or clarified butter which is to-day the main product of the pastoral population of 'Iraq: apart from its artistic value therefore the scene has a peculiar interest as illustrating the domestic life of the earliest inhabitants of the country and linking it up with that of the present; the main point of difference is that in this case the men engaged in such homely employment are not ordinary farmers but, as their clean-shaven heads and their ceremonial costume make evident, priests attached to the service of the goddess whose temple the picture adorned, the patroness of the farm whose very shrine, as we shall later see reason to believe, was derived from just such a humble farm building as is represented on the frieze.

The loops attached to the spears at the door of the byre appear again on a terra-cotta model of the entrance of the shrine of the god Enlil cited by Dr. Legrain [1] and often at the sides of doors; they have been variously explained, but their association with the weapon seems to me

[1] *Loc. cit.*, Fig. 21.

to show that they are throwing-thongs.[1] The representations of pottery vessels are most important because they are clearly enough rendered for the types of the pots to be identified, and we shall find just such actual pots in the early graves of the neighbouring cemetery, and can therefore assign to them an approximate date. Dr. Legrain points out that the apparent absence of the udder from the cows bespeaks an early stage in the development of the domestic breed; it is likely enough that the udders were small, and of course when the beast was milked from behind the udder would be drawn back between the legs and so would be less obvious and its representation would present difficulties which the artist might find it easiest to solve by simple omission.

This apparently *genre* scene of pastoral activities is raised to a religious plane by the fact of the workers being priests; the bearded head on the fragment TO. 316 and the remains of a sleeved garment on TO. 319 show that there were also represented on the frieze ordinary laymen distinguished by their dress and the fashion of wearing their hair and make the identification of the clean-shaven ' kaunakes '-wearing temple servants quite certain. The cattle then are the cattle of the goddess Nin-khursag and the byre is the sacred farm which at one time was her only shrine. Nin-khursag, who was known before to us as one of the powers concerned in the creation of the world, now figures also as a goddess who, like Gatumdug at Lagash, was a patroness of farm and dairy, and had her temple not in the city but away in the fields where the cows were; but the two rôles are not independent. To a primitive pastoral folk which depends wholly upon its livestock, milk, at once food and drink, is the sustenance of life, and if the milch cattle are not actually deified, at least they must be associated with and protected by a deity to whom man's continued existence is a special care. Nin-khursag then not only joined in the creation of man, but having made him provided for his preservation upon earth by the fertility of the beasts that administered to his needs. And when we find that round the temple there are large cemeteries, that men were brought for burial out here, far from the town, where they might lie under the shadow of her shrine, crouched in the earth in that embryonic attitude which connects death with birth and surrounded by the vessels, the ornaments and the tools which they had used in this world and might haply need in another, then we may with good reason conclude that in their beliefs Nin-khursag had yet another function, and that the creator-goddess not only assured the continuity upon earth of the life that she had bestowed, but safeguarded

[1] [These symbols, of magical import, are commonly shown planted beside doorways, or supported by protecting genii, especially upon cylinder-seals. They were perhaps called *urigallu* (*Z. A.* XVIII, p. 130), though this name seems to have been applied to other standards as well, such as the Assyrian military emblems (Thureau-Dangin, *Huitième Campagne de Sargon*, p. 4, note 8), and probably the staff held up by some of the apotropaic monsters (cf. especially *J. R. A. S.* 1926, p. 697, l. 19; Pl. XIII, 22). The *urigallu* was generally made of reeds, being used in connexion with ceremonies of purification (Zimmern, *Ritualtafeln*, p. 126), but the ' looped post' has also been found in copper (*R. A.* IV, p. 112, cf. V, p. 132 f.), and a ' loop ' of stone from one of them has been discovered at Ur. C. J. G.]

it beyond the span of its mortality and brought to new birth those whom time had outworn.[1]

TO. 299. Inlay panel with shell figures of five oxen advancing to the right in a row. Height 0·22 m., height of inlaid area without copper border, 0·14 m., length 0·70 m. Pl. XXXII, 1. (L., B.M. No. 116741.)

The panel lay face downwards but on a slope, with the feet of the animals towards the wall; it was at a depth of 1·20 m. below the top of the red brick debris and the foundation of the grey brick terrace, about 2·50 m. away from the wall face and 0·20 m. above the average level at which the copper reliefs of bulls were found. Touching it at one end, and apparently connected with it, was the plaque TO. 288, and below it lay another fragment of bull inlay, TO. 300. The two copper holdfasts attached to the panel were found in position behind it, but loose, and were removed.

The panel was in remarkably good condition, the borders preserved and all the pieces of inlay in place except the body of the last bull which had been forced away from its backing and lay in three pieces two or three centimetres off. The back was heavily waxed and the panel lifted in one piece, the front also waxed to fix the inlay in position, and the broken body having been put back the whole was kept absolutely as found without any further restoration.

In the shell bulls the body is made in one piece and the head and legs are carved separately and the parts assembled when fixed into the bitumen backing. Though all conform to one general type there are many divergences of detail and the composition does not suffer from monotony. The very delicate relief with which the modelling of the body is rendered has already been noted; here it might be added that although the strength of the animals is conventionally emphasized by a formal schematization of the muscles, this successfully avoids that hard exaggeration which disfigures later Assyrian reliefs, and there is a designed contrast but not a clash between the softly graded contours of the flesh and the sharp incised lines which mark muscle and tendon. The heads being in profile only one ear and one horn are shown; the eye is full and round, perhaps unnaturally so, but this is a convention to portray liveliness and vigour; the muzzle is short, with full nostrils, and the dewlap is heavy and pointed: the long wavy hair of the tail brushes against the hind leg (with which it is carved in one piece) and reaches to the ground.

TO. 300. Inlay panel with shell figures of six oxen advancing to the right in a row. Height with border 0·22 m., height of inlaid area without border 0·14 m., length 0·85 m. Pl. XXXII, 3. (P.)

The panel lay close to TO. 299, between it and the wall, standing upside down on its edge with the animals facing the wall and their feet in the air. The panel was bent and buckled and in bad condition, nearly all the upper border broken away, though this was found, and the two end bulls detached from their setting and imperfect. The whole was lifted in one piece but had to be taken apart in the laboratory and the mosaic relaid on a fresh background and missing parts supplied: these parts were the hind leg with tail of the fourth bull and the hoof of his other hind leg, one leg of the fifth bull, and much of the black background at each end.

[1] Cf. p. 145f.

TO. 301. Inlay panel with shell figures of four oxen advancing to the right in a row. Height with copper border, 0·22 m., height of inlaid area without border 0·14 m., length 0·56 m. Pl. XXXII, 2. (B.)

Found face downwards but sloping sharply with the feet of the animals higher than the heads and turned towards the wall. The panel was much damaged, the whole of the upper copper border having disappeared together with the upper part of the black background, the background against the front of the leading bull and the hindquarters of the fourth, and part of the right front leg of the fourth bull was missing; the lower border was still attached, but was in bad condition. Much of the inlay had started slightly from its place, and the whole had to be taken to pieces and relaid on a new backing.

TO. 302. Inlay panel with white limestone figures of two bulls advancing to the right. Height with copper border 0·22 m., height of inlaid area without border 0·14 m., length 0·38 m. (L., B.M. No. 116753.)

Found in very bad condition, the upper border gone and the lower much damaged, one leg of the front bull broken and the head and hind leg of the second missing.

TO. 278. Limestone inlay of bull advancing to the left. The legs are made separately and only the hind legs were found (one broken). Height 0·15 m., length 0·145 m. Pl. XXXIII, 2. (P.)

TO. 279. Limestone inlay of bull advancing to the left, exactly like TO. 278. The legs were made separately and the forelegs are missing. Pl. XXXIII, 2. (L., B.M. No. 116954.)

[TO. 278 and 279 were found close to one another, almost opposite the south corner of the platform and about seven metres away from it.]

TO. 307. Shell inlay of bull advancing to the right. Broken from but belonging to TO. 300, to which it has been rejoined. Pl. XXXIII, 1. (P.)

TO. 308. Shell inlay of bull advancing to the right. Two legs missing. Found close to TO. 301. Height 0·14 m., length 0·15 m. (L., B.M. No. 116957, 116958.)

TO. 309. Shell inlay of a bull advancing to the left. Height 0·16 m., length 0·14 m. The several parts do not necessarily belong together; the head was found well away from the staircase opposite the wall, the body a little way south of the foot of the stairs, high up in the debris. Two legs are missing and the muzzle has been chipped. Restored in plaster and mounted.

TO. 310. Shell inlay of the body (only) of bull advancing to the left. Found far out from the temple front beyond the bottom of the stairs, high up in the debris. Height 0·05 m., length 0·085 m. (P.)

TO. 311. Limestone inlay, broken into two pieces, forming together the lower part of the body of a bull advancing to the right. Length 0·135 m.

TO. 312. Limestone inlay of a bull advancing to the right, head and forequarters only, front legs missing. Height 0·105 m., width 0·075 m. Found in the mixed rubbish near the ' kitchen range '. (L., B.M. No. 116959.)

TO. 313. Limestone inlay of a bull advancing to the right, back half of body only. Corresponds to TO. 312 but does not belong to it.

TO. 406. Fragment of shell inlay of a bull facing left: head only, front of muzzle and part of back of head missing. The fragment, which has been burnt, was found in the rubbish near the ' kitchen range '. (P.)

TO. 316. Fragment of limestone inlay, or plaque like TO. 288, the head of a man facing to the right. The figure is not silhouetted but in relief, the background being cut back to a lower plane (there are no traces of colour, but presumably it was painted black). The man has a short beard and his hair is dressed in a series of curls rising almost vertically from his head: the eye is large and full and is shown front view. The nose is broken but does not seem to have been very large. The beard is grown from low down and leaves exposed the cheek, the outline of which gives the characteristically heavy jowl of the Sumerian. The analogy of the Ur-Nammu Stela makes it clear that we have here to deal with an ordinary Sumerian workman or layman as distinct from the clean-shaven priest on the one hand and, on the other, from the

king with his long and elaborately curled beard whom we see thus represented also on the Kish inlay:[1] the hair of this figure may be paralleled by the rows of dots round the heads of the figures in the lower register of the stone ' well-head ' or vase relief, TO. 285. Height 0·03 m., width 0·033 m. Pl. XXXVII. (P.)

TO. 422. Limestone inlay, head of a man facing to the left; exactly like the heads of the priestly workers in TO. 303, clean-shaven and beardless. Found in the shallow surface soil outside the line of the stair front. Height 0·021 m. Pl. XXXVII. (L., B.M. No. 118327.)

TO. 317. Limestone inlay fragment, the shoulders and left arm, with hand holding a lituus, of a man advancing to the left; over the shoulder he wears a heavy shawl. The difference in dress from the ' kaunakes ' skirt which characterizes the priest shows that this figure too is that of a layman. Height 0·03 m., width 0·06 m. Pl. XXXVII. (L., B.M. No. 116953.)

TO. 318. Limestone inlay fragment showing the flounced skirt, left upper leg and part of staff of a man advancing to the right. The fragment does not belong to TO. 317, but is very much like it. Height 0·055 m., width 0·055 m. Pl. XXXVII. (L., B.M. No. 118326.)

TO. 319. Two fragments joined of a coarse limestone inlay figure of the Im-dugud or Imgig bird, lion-headed and bending down, no doubt to bite the back of the human-headed bull, as on the relief inlay plaque TO. 288, next to be described. The head is partly broken off; the legs wholly; and the object is considerably worn. Length 0·092 m.; height 0·042 m. Pl. XXXVII. (L., B.M. No. 116960.)

TO. 288. Limestone plaque carved in relief, from the same frieze as the inlay panels. It was found lying just under and against the end of TO. 299 (*q.v.*) to which it seemed to have been originally joined, and with it, but detached from it, were the remains of a copper border similar to that of the inlay panels. The ground round the figures was cut back to a lower plane and on this background there are clear traces of black colour. Height 0·145 m., width 0·14 m. Pl. XXXV, 1. (P.)

The relief represents two mythological animals, a human-headed bull and a lion-headed eagle (Im-dugud). The bull advances towards the right, his body in profile and his head full-face to the spectator; he stands half erect with his hind feet on the ground (i. e. carried down to the bottom of the stone; the actual ground is not shown) and his front feet set, the right upon the centre and the left upon a horn of a kind of crescent which rests on a mountain-top symbolized by the usual convention. The eagle faces in the opposite direction; he stands on the back of the bull just behind the shoulders, and with bent head appears to be gnawing his hindquarters.

The style of the drawing is primitive and even grotesque when compared with that of the shell bulls of the next section of the frieze, but the difference cannot really be one of date and must rather be due to the conservative spirit which influenced the artist when he had to treat a religious subject already stereotyped by tradition. The bull's human face has the long wavy beard which gods wear, and his horns curve inwards as do the horns on the head-dress of the gods, and from his knees spring

[1] Langdon, *Kish*, i, Pl. XXXVI.

curious tufts which Dr. Legrain takes to be hair and a sign of strength.[1] The object on which the bull sets his fore feet, by the analogy of TO. 289, may be a bush—the ribbed stem and the terminal leaves are the same in each case—in which case the mountains are meant to be covered with forest or scrub; but making all allowances for an exaggerated convention the crescent form is so marked that it can hardly be accidental. The drawing of the bird (which is certainly lion-headed) is even more childish than that of the bull, and that it is a piece of deliberate archaism is the only excuse for its appearing in the same series as the birds of the upper frieze: the talons are reduced to toes, the plumage is not only a very rough convention in itself, but ignores altogether the form of the body.

That the plaque is an example of what may be called religious heraldry is certainly true, and if it symbolizes, as Dr. Legrain thinks, the capture of the mountain bull, the first stage in the domestication of cattle, its introduction into the frieze of pastoral life is appropriate enough, but I am not convinced that this interpretation is correct. The lion-headed eagle of the equally heraldic Im-dugud or Imgig relief cuts a much more imposing figure as the vanquisher of wild beasts than does this very domestic eagle so much smaller than his supposed prey; moreover there his victims are really wild animals, true in all respects to nature, whereas here instead of the typical mountain bull which the Sumerian knew so well how to draw (cf. TO. 289) we have a composite creature whose human face and godlike beard raise him above the beasts which man might hope to tame, and the attitude of the eagle reminds one less of the victorious bird of prey than of the crows who can be seen perched on the backs of the pasturing cattle and picking the ticks out of their hair—a friendly service rather than a conquest. The bull seems to me to be the 'great Bull of Heaven' whose home is in the hills and his symbol the crescent which springs beneath his feet, and the bird, Imgig or whatever god it may represent, is associated with him as a friend. The repetition of the subject elsewhere—we find it on an engraved shell plaque in the Louvre coming from Telloh[2]—shows that it has no particular connexion with the pastoral scene of our frieze and need not therefore be interpreted by it, just as the occurrence of the Im-dugud (Imgig) relief on a building founded by the independent king of Ur proves that it is not necessarily the blazon of Lagash as a paramount city state; these are recognized religious formulae which carry their complete meaning (whatever it was) in themselves independently of their context. The association of the two monsters must signify a union of divine powers rather than a political alliance or an incident of animal life.[3]

[1] *Museum Journal*, loc. cit., p. 155. Dr. Legrain says: 'The group . . . forms a realistic coat of arms and its symbolism is not doubtful. The bison with long flowing beard, crescent horns, tufts of hair—a sign of strength—growing at the joints is an inhabitant of the Elamite hills. . . . The lion-headed eagle dominates the tame animals and seizes them in its talons. He is an emblem of the corral or park, the doors of which beat and open like wings.'

[2] *Déc. en Chaldée*, Pl. 46, No. 4; cf. King, *Hist. Sumer and Akkad*, Figs. 31, 35.

[3] [The subject of this plaque and of similar representations is almost certainly taken from the

TO. 376. Fragment of shell inlay representing the shoulders and neck of a bird very like the Imgig-eagle in TO. 288 and TO. 319, and in the same attitude; it must also be from a replica of the same scene, but this was in shell and with the figures silhouetted instead of in relief. 0·044 m. ×0·027 m. Pl. XXXVII. (P.)

TO. 305. Shell inlay, the head of an ibex or wild goat; the horns, which circled right round to the nape of the neck, are chipped at the tip. The animal was silhouetted in shell, and the carving is naturalistic in style and admirable in quality. It was found on the north-east side of the stairs, and might therefore have come not from the main part of the façade of the temple to which the other inlays belong, but either from its continuation beyond the stairs or from the north-east side of the building. 0·047 m.×0·03 m. Pl. XXXV, 4. (P.)

TO. 306. Fragment of limestone inlay (two fragments joined together), the hindquarters of an ibex or wild goat shown either leaping forwards or standing up on its hind legs like the animal in TO. 289. Found west of the stairs, so that there may have been parts of the main inlay frieze on which other animals than bulls were represented. (See above, TO. 305, and *cf. Déc. en Chaldée*, Pl. 46, Figs. 5 and 8.) Greatest length of fragment, 0·010 m. Pl. XXXVII. (L., B.M. No. 116961.)

TO. 271–6. Limestone figures of birds inlaid against a mosaic background of black shale and framed between copper borders, forming a frieze similar to but distinct from that with the milking scene and the bulls. One section was found decayed but the birds retained their relative positions, and other birds were loose in the earth and low down above the lime floor. The birds are of an uncertain genus, the heads are rather those of doves; but the attitude, which makes them appear to be swimming, especially as the feet are not shown, is that of ducks. The workmanship is poor, the figures being mere silhouettes with no more internal detail than the eye and the outline of the front of the wing; perhaps they were originally coloured, but of this no trace remains. (Pl. XXXIII.)

TO. 271, 272, 273. Three limestone figures of birds for inlay: the birds face to the right, the height of each is 0·13 m. and the length 0·18 m. The heads were broken off when found, but have been rejoined. The three were found in a row, about five centimetres apart, upright on edge, with a copper holdfast behind them and some black shale tesserae from the background; they had to be lifted separately but have since been made up (with more black background) as a complete panel with a modern copper border. They lay opposite the middle of the wall on the

mythology, and depicts the slaying of a wild-ox by the bird-god Zû (the Im-dugud bird) in ' Khashur, the unknown mountain ' (*C. T.* XV, Pl. 43, K. 5187, &c.). This forms part of the little-known story of Lugal-banda and Zû, which is now beginning to appear, partly in bilingual, but mostly in Sumerian form (cf. Jensen, *K. B.* VI, 1, pp. 46–57; Poebel, *P. B. S.* V, No. 16; Langdon, *O. E. C. T.* I, W–B, 162, and Chiera, *Sumerian Religious Texts*, Nos. 33–5, together with his remarks on p. 34 f.). A cylinder-seal of lapis-lazuli in the British Museum (No. 22962) shows the bird and bull in the same attitude, while behind stands a human figure (Lugal-banda) raising his dagger to strike the bird. C. J. G.]

west side of the stairs, and about one and a half metres from the wall face. Pl. XXXIII, 1, 2. (P.)

TO. 274. Limestone inlay bird, like TO. 271–3, head broken off but found and rejoined. Pl. XXXIII, 1. (L.)

TO. 275. Limestone inlay bird, same type, head missing and tail broken.

TO. 276. Limestone inlay bird, body only, broken and imperfect.

Three of these birds have been restored with a black background (partly original) and modern copper border, with the British Museum No. 116742.

TO. 277. Limestone inlay, four heads of birds like TO. 271, found loose.

TO. 314. Shell inlay fragment. A human foot, very well carved, cut off halfway up the calf, and intended for a mosaic figure of which the dress may have been in some other material. The front of the foot with the toes is broken off and missing. The scale is much larger than that of the stone figures in the milking scene; cf. TO. 315. Height 0·042 m. Pl. XXXVII. (L., B.M. No. 116962.)

TO. 315. Shell inlay fragment. A human right hand and part of lower arm, clasped round the wrist by another right hand. The arm is cut off and must come from a mosaic in which the dress may have been of some other material. The scale is much larger than that of the stone figures in the milking scene and agrees with that of TO. 314, above. Length 0·061 m., width 0·021 m. Pl. XXXVII. (P.)

These two fragments, TO. 314 and 315, may well belong together and come from a scene of the king A-anni-padda leading prisoners in triumph, like that which occurs on an inlay panel from Kish,[1] or from an introduction scene. In any case they cannot belong to either of the inlay friezes of which we have other remains, as figures so large could not fit into the narrow field of those friezes, 0·14 m.

TO. 289. Fragment of a flat shell plaque intended for inlay in a casket or piece of furniture, engraved with a figure of a wild bull in a mountainous and wooded country. Height 0·062 m., width as broken, 0·037 m. Pl. XXXV, 3. (L., B.M. No. 116963.)

The bull is shown rampant on his hind legs, body and head alike in profile; in front of him is part of a mountain, rendered by the usual convention of ovoids, and from this there grows out a plant with long ribbed stems ending in leaves or flowers. The drawing is vigorous and realistic, and the engraving very sure and fine. The subject is one already known to us from shell engravings[2] and is an instance of the heraldic scheme of two animals facing each other and standing upright on either side of some central object, in this case a mountain. On our fragment we have left only half of the scene, but even without the parallel examples it would be fairly obvious that there must have been another animal to balance that which remains.

The plaque is clearly quite a different thing from the frieze inlays and

[1] Langdon, *Kish*, Pl. XXXVI, 1, 3.

[2] Cf. King, *Hist. Sumer and Akkad*, p. 80, Fig. 33.

could not have been intended for wall decoration high up on the temple façade where the engraving would have been altogether lost; it must have come from a piece of furniture meant to be looked at at close quarters. If this was, as it must have been, some object kept inside the shrine, the position in which the fragment was found, a little way down the slope from the east corner of the platform, where it might easily have been thrown if this corner of the platform was an open court, strengthens the theory as to the position of the shrine which is developed in Chapter VI. A number of pieces of plain shell inlay, mostly rectangular bits, squares or strips, measuring up to 0·075 m., were also found, and might have belonged to a similar piece of furniture.

TO. 429–31. (Pls. XXXIV–V.) *Mosaic columns* (of the same type as those found by Dr. Hall, Pl. IV). These columns were made of palm logs, of which distinct traces were left. The log was covered over with a coating of bitumen about one centimetre thick and against this were pressed tesserae of mother-of-pearl, pink limestone, and black bituminous shale, each tessera having a copper wire passed through a loop-boring at the back of it and the ends twisted into a ring; the wire sank into the soft bitumen and held the tessera fast, while the bitumen was pressed out so as to rise and fill the interstices between the tesserae giving them a narrow outline of black which greatly enhances their effect. The tesserae were of three shapes, small squares which were set diamond-fashion in horizontal bands round the column shaft, with triangles to bring the bands to a straight edge, and elongated triangles which were set base to point alternately also in horizontal bands. In the zones of small squares the colours were arranged in rows, black, red, black, white, black; in the zones of triangles the norm was to have a row entirely composed of mother-of-pearl and dovetailed into this a row of alternate black shale and pink stone: but there were irregularities in both cases. The effect of the mosaic is extraordinarily gay, and though there is a good deal of irregularity in the cutting of the tesserae, which is but partly masked by the bitumen between them, and occasional carelessness in their application, this is not enough to interfere with the design of the mosaic or with the smoothness of the shaft. The two main columns were 3·30 m. in length and their circumference was about 0·30 m., but there seemed to be a certain degree of tapering at one end. This was very difficult to fix, owing to the state in which the columns were found. The wood had decayed utterly away, only a few shreds of the palm fibre, completely oxydized, adhering to the bitumen coat: the bitumen was there, but it had dried and crumbled and had resolved itself into a layer of black powder and lumps which had no coherence, though thanks to the presence of the copper wires, now oxydized also, they might adhere to the individual tesserae. To some extent infiltered clay had taken the place of the palm log, but this had been neither sufficient nor solid enough to resist the weight of the copper-sheathed columns and of the mass of fallen brickwork from the ruined terrace which pressed down on the shafts; as they were flattened

out the edges of the ellipse formed from their circle tended to crack, and the tesserae along the edges broke away; the columns as we found them consisted of two long sheets, convex and concave respectively, of tesserae kept in their place by their inability to shift any more in their solid bed of earth, the two only in places joined together by a curve of undisturbed mosaic. It was only when the sections of the shafts were set up again on a new core that proper measurements could be taken of their diameter, and even then the measurements were difficult to check since it was not always possible to say whether tesserae were missing from the broken edges, and if so how many: but as in one case the two halves of the section seemed to fit the new core exactly, and in another there was an overlap which did not seem to be due to the distortion of the column resulting in the spreading of the tesserae (another possibility which had to be kept in mind), it was fairly safe to conclude that the shaft had in some degree tapered from base to top.

The first column-fragment to be found was the small one, TO. 429 (Pl. II, 29), which stood right way up though distorted against the east corner of the platform. The method adopted for removing this was experimental and not wholly successful. The top of the fragment having been exposed as a ring of tesserae standing vertical in the earth, we proceeded to remove the soil from round it, a few inches at a time, fastening the tesserae together, as they appeared, with strips of medical adhesive bandages: this was repeated all round the fragment, several layers of plaster being applied, and then a casing of glued canvas was bound round the whole, and when this was dry the section was lifted with its earth core still inside. In the house we cleaned out the earth and by degrees removed the crumbled bitumen which still adhered to the back of the mosaic, putting on instead a backing of plaster. In this way the piece was preserved as found, twisted awry but with its decoration undisturbed: but as it had been impossible to clean all the dirt off the faces of the tesserae while the object was yet in the ground, the plaster did not stick well and as the surface to be treated grew larger was not strong enough to hold up the weight of the mosaic: the specimen suffered a little in removal, and it was evident that the method would only fail if tried on a larger fragment. When therefore we found the complete columns different methods were employed. The upper or convex surface had naturally to be removed first. The surface, and as much of the edge as remained and could be got at were cleaned—itself no easy task, for the tesserae were quite loose, especially along the sides, and even the most delicate brushing would dislodge them, and the mother-of-pearl was very often laminated by decay and could be blown away, so that generally the piece had to be held in place by one hand while it was cleaned with knife or brush by the other; when a length of about sixty centimetres had been thus cleared boiling paraffin wax was poured over it, and then muslin bandages dipped in wax were applied all over the surface, the first layer horizontally to the shaft so as to fix the bands of mosaic, the

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second layer at right angles to the first so as to make a solid sheet. Carving-knives were pushed gently through the earth just below the incrustation and the sheet of tesserae by degrees eased up from the soil; as soon as it was really loose it was lifted up at one end, a board inserted and pushed along underneath it, and the half-section was lifted. With the lower half-section the clearing away of the clay and bitumen exposed of course the inner face of the tesserae, and as to have waxed these would have complicated seriously the work of fixing them on to a new core, melted glue was poured over them and glued canvas laid over, pressed down and allowed to dry, and then the whole lifted on to a board. It was found that a petrol drum was of exactly the same diameter as the original palm-log *plus* the bitumen coat, so a drum was covered with paper pasted on to give a better hold, the glued canvas mounting of the lower half-section was softened with steam and after being heavily glued was bent round the drum and kept in place with wrappings and string until it had dried on, and then the other side of the drum was thickly coated with a mixture of thin hot glue and plaster-of-paris, the waxed sheet of tesserae from the upper half-section was laid face downwards on an iron plate and softened over a brazier, the back of the tesserae smeared over with the same mixture of plaster and glue, and the drum was placed on it and rolled until the sheet adhered, and was then enveloped with wrappings and string until this half of the incrustation likewise had stuck firmly to its new core. The result is that the columns are preserved exactly as found; a few tesserae which came loose in the process have been replaced, but there has been no removal and rearrangement of the mosaic; where this was broken away at the sides the blank has been left without any attempt at restoration. The only modernization, apart from the core, is that where the powdery bitumen had fallen away from between the tesserae (as it generally had) the gaps thus made have been filled in with black plaster to give the proper effect; this was indeed necessary, for more than appearance's sake, for the smooth backs of the tesserae, deprived of the copper holdfasts, were secured none too well by the glue and they would have fallen off without the extra support of the plaster between them. Four drums were made up at Ur and the remaining sections were brought back still in the flat sheets. The sections have been distributed between the three museums.

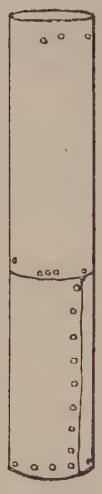


FIG. 31. Copper-sheathed log. T.O. 362. ($\frac{1}{10}$.)

TO. 429. (Pl. II; 26.) Section of mosaic column, much distorted, preserved as found. Found against the east corner of the platform, upright on end. The tesserae are smaller than in the other columns, the squares being on the average 0·016–0·018 m. square and the triangles 0·06 m. high.

Diameter of encrusted shaft 0·27 m., height of fragment 0·15 m.: when found there remained in position a few tesserae of the next upper row, giving a total height 0·22 m. (L., B.M. No. 116990.)

TO. 430. Mosaic column. Complete shaft found, measuring 3·30 m. in length with a diameter of

0·30 m. The decoration as described above, the average width of the zones of square tesserae being 0·12 m. and that of the zones of triangles 0·38–0·40 m. The square tesserae average 0·037 m. square, the triangles 0·070–0·085 m. in height. Removed in five sections, of which four were made up and mounted in Ur. This column lay immediately on the top of TO. 431 and under the copper-sheathed column TO. 362. Pl. xxxv, 6. (L., B.M. No. 116760.)

TO. 431. Mosaic column exactly like the last, with a present length of 2·30 m. and loose tesserae beyond this, the same diameter and tesserae of the same size. Found under TO. 430. Removed in five sections. Pl. xxxv, 7. (P.)

TO. 362–7, 428. Sections of columns and beams of palm-wood overlaid with sheet copper. The copper was bent round the log and secured with large-headed copper bolts along the edges; the plates of metal varied from 0·42 m. to 0·56 m. in width. The best-preserved example was 3·60 m. long and its diameter was between 0·175 m. and 0·20 m.; it was flattened and distorted; of it there were kept two sections, TO. 362 (Fig. 31) and 364. Another which lay just to the south-east of the mosaic columns was 2·35 m. long and on it rested a fragment which may have been broken off from it; its diameter was *c.* 0·25 m.; it is represented by TO. 428. Close again to the mosaic columns was a slenderer shaft whose original length was lost, but what remained of it measured 2·80 m. with a diameter of 0·13 m. (one end lay under the TO. 362 shaft and had to be cut away as it was oxydized on to that); TO. 363 (B.M. 116750), 365, 366, and 367 all come from this. Another fragment in bad condition and not kept by us measured 0·90 m. long with diameter 0·15 m., and there were some smaller pieces.

TO. 270. Cup of white marble, type XXXIII, height 0·09 m., diameter at mouth 0·06 m., at base 0·035 m. Part of rim missing. Found near the foot of the stairs. (L., B.M. No. 117004.)

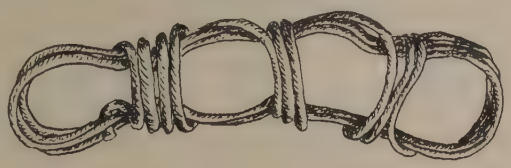


FIG. 32 Silver wire. TO. 290. (⅔).

TO. 290. Silver wire. A length of twisted three-ply silver wire which has been wrapped three times round and between four objects, or an object in four parts, of which nothing now remains. Length of coil, 0·108 m., width *c.* 0·023 m. Fig. 32. (B.)

Besides the small clay cups (types I–IV) which have already been mentioned, there were found very few pottery remains. The most important was a tall cylindrical vase of white clay, very badly broken up, of a shape (Fig. 33) not represented in the collection from the tombs, height 0·62 m., diameter *c.* 0·16 m. Close to this, on the east side of the staircase and a little farther out from the wall than where Dr. Hall found the lion figures, was another vase of similar white clay also badly broken and of a type not found in the tombs. Against the face of the platform west of the stairs were found fragments of a large ribbed larnax just like those in the cemetery.

Another object important not in itself but for what it implies was a large slab of limestone found 4·00 m. west of the foot of the main stairs. It was irregular in shape, its greatest measurements being about 0·75 m. each way, and most of the surface was rough and undressed, but towards one side there was a straight cut which was the edge of a sunken panel; of this very little

Fig. 33. Vase of white ware.

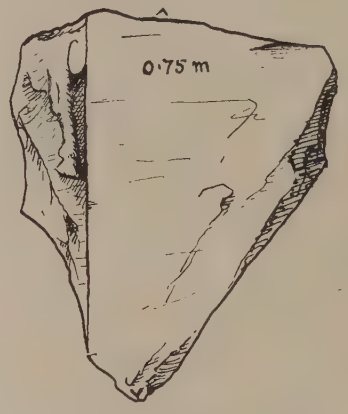


Fig. 34. Fragment of stone relief.

remained, but enough to show a leg of a cow or bull and what may have been a dewlap carved in relief (Fig. 34). The work seemed to have been but rough originally, and the stone was so weathered that the design was scarcely recognizable, but at least we have here definite proof that the temple of Nin-khursag was decorated not only with the copper statues and reliefs and mosaic friezes which have been described above but also with stone reliefs of considerable size. But nothing else of the kind was found.

CHAPTER VI

THE RECONSTRUCTION OF THE TEMPLE

By C. L. Woolley

An account has now been given of the existing ruins and of the objects found in connexion with them, and on the basis of these it is tempting to venture on the reconstruction of a building of such extreme antiquity and interest. But it must be emphasized that the ground-plan which we possess is that of the substructure only; of the temple which stood upon it there is not a single brick left *in situ*, nothing remains to fix even its outline, and any idea which we may form of its original appearance must needs be largely theoretical. I feel that the attempt ought to be made, because in the course of excavation there come to light a number of facts which, perhaps unimportant in themselves, do when taken together constitute evidence pointing in particular directions, and it is only by using that evidence that one can do justice to the facts; no amount of straightforward description can give them their proper value, and if the field-worker fails to give due weight to the intangible impression which he receives from the conditions of his work, which only he can receive and which he cannot impart as such to others, then he fails just where his work begins to be most scientific, and his record, however painstaking, is not a complete presentation of the truth as he has seen it. If in what follows there is a certain amount of repetition from previous chapters, it is because here the same facts are looked at from a new point of view: no detail in the reconstruction should be inserted without reasonable evidence, but that evidence must be carefully weighed in the light of the facts and in order to get the true implication of these their restatement may be essential. On Pl. xxxviii the original temple is shown in the form of a sketch, because the scientific accuracy implied by an architectural elevation is in the circumstances unobtainable; to restore, if only on paper, a building whose very foundations were rooted out nearly five thousand years ago is necessarily hazardous, but it need not be wholly fanciful, and to make the attempt is only to do justice to one's material.

We may begin with the platform. The height to which the existing ruins stand gives of course a minimum measurement for that of the original structure, but does no more than that; had the top preserved a moderately level surface one might have argued that this approximated more or less closely to the original terrace, but with the walls varying in height as they do from three and a half metres to zero, there is no intrinsic reason to suppose that even the highest point has not suffered seriously from denudation. Three features of the building help us to estimate its maximum height, namely the two staircases and the drain against the north-west face. If the slope of the drain front be produced upwards until it meets the line of the wall it gives 6·30 m. as the height of the platform: but as against this the

terrace may have been lower and the top of the drain have run out from it horizontally before beginning its slope, or, though this is inherently less likely, the terrace may have been higher, the inclined drain being carried up through a cut in the terrace edge: perhaps 6·30 m. is the safest measurement on which to reckon, but this is only a maximum figure and not necessarily the height of the building.

In dealing with the south-west stairs the length of the staircase has to be determined before its height can be fixed. The stairs lead on to the top of the mud-brick platform and we have to allow for a parapet wall round the edge of the platform, which being built of mud brick would have had not less than a metre's thickness, and for a landing between this wall and the stairhead wide enough to admit of a gateway on its north-east side communicating with the main platform, this requiring from one and a half to two metres: we are left with about 13·50 m. for the length of the flight, and since the remaining treads give a rise of 1·50 m. in 2·90 m. we have again a maximum height for the landing of about six metres above floor level.

If the south-east stairs ran up at their present slope to the line of the platform front it would make the terrace some ten metres high, a figure wholly inconsistent with the evidence of the other features; we must conclude that the steps did not extend the whole length of the ramp, but that there was at the stairhead a level approach or landing projecting from the terrace edge, and, since there is nothing to show what proportion of the ramp was taken up by this and what by the stairs, it is impossible on internal grounds to estimate the height of the latter.

The maximum height for the platform is therefore 6·00 m. approximately, and 3·50 m. its minimum; for the purposes of reconstruction I have arbitrarily taken a mean between these two and have drawn it as about 4·50 m. high. In assuming this comparatively low elevation I was influenced by aesthetic considerations: the decorative elements of the façade were attached, as the conditions in which they were found proved, I think, beyond question, to the wall of the temple and not to that of the platform, and judging from the order of their arrangement they must have occupied a very considerable vertical space on the wall; the lowest of them would be as much above eye level as the base of the temple wall, and the highest much higher up; one could not imagine that they were ' skied ' to the extent of being invisible, and so, in order that due justice might be done to their small scale and delicate workmanship, I have brought them down as low as possible by reducing as far as seemed safe the height of the platform.

When I visited al-'Ubaid in the spring of 1923 and saw the outline of the building in so far as it had been traced by Dr. Hall, I concluded that the wall was the containing-wall of a platform and that the greater part of this platform had been an open court, the only superstructure upon it being comparatively small and occupying the south-east side of the terrace, or, more probably, its south corner. This conclusion is worth recording because it was based on certain very obvious features of the site, namely that the highest point of the mound (see the cross-section, Pl. II) rose above just

that part of the supposed rectangle which had not yet been excavated, i.e. its south corner, while from this highest point the levels fell away to the east, north, and west so steadily that there was virtually nothing to mark the (known) confines of the building. I had already suggested projections from the rectangle on its south-east and south-west faces, and was inclined to connect these with the superstructure, wherein I was in error, but on the main question of the position of the building on the platform the surface indications were fully borne out by the results of excavation. Along the north-east face of the platform all the upper courses of burnt brick had fallen and the north corner was ruined down to its foundation; the west corner and the south-west wall as far as the smaller staircase was preserved up to the top of the burnt brick, and the north-west wall also was in good condition; but along the south-east face, on each side of the main stairs, there remained crude brickwork which, though tilted forwards, still stood above the burnt brick to a total height of 3·50 m., running down to nothing at the east corner where only the burnt brick was left; consequently in the centre of this face the mound stood high; and at the south corner, though we found that the whole wall, crude and burnt brick alike, had been violently overthrown almost from ground level, and was leaning forwards at an acute angle, yet even so the accumulation of ancient debris was so great that the mound's highest point lay south-west of the main flight of stairs, and the high ground ran right out beyond the angle of the platform. And this was not merely a surface accident. When the builders of the second temple started to lay their brick terrace over the top of the old ruins the latter formed a mound of much the same shape as we see to-day; thus towards the north corner, which is now ruined down almost to its foundations, the grey brickwork of the second period also is carried down to a level much below that to which elsewhere the burnt brick and the red mud brick of the earlier building are preserved; just by the main staircase the old work was standing to about 3·50 m., and in front of this the heaped rubbish against the south-east wall was virtually as high, so that in order to lay their terrace bricks the Second Period labourers trimmed the rubble slope into steps of which the first from the top was 2·60 m. above the old floor level and extended 2·50 m. from the face of the south-east wall of the platform, and then came steps 2·10 m., 1·080 m., 1·20 m., and 0·90 m. high respectively, and giving a total extension from the wall of nearly ten metres. On the north-west face on either side of the stair projection the total deposit of rubbish, which was 2·35 m. high against the wall, represented all three periods and sloped down rapidly to nothing, and on the north-east face there was even less—the platform wall stood only about 1·85 m. high above floor level, and when we ran a trench out from this following the original ground level for a distance of over 25·00 m. we found that the total amount of debris here was no more than would be accounted for by the collapse of the platform and of the later buildings, and did not at all support the theory of a contemporary superstructure on this side of the platform itself. The natural processes of detrition by weather will not suffice to explain this recurring feature of the shape of the ruins. As I have said

before (p. 60), a building with mud-brick walls suffers more from the rain brought up by the south-east winds than from the dry winds which prevail from the north-west, and therefore had the oldest Nin-khursag temple occupied the whole of its platform we should have expected its north-west part to be best preserved and its south-east part to be most decayed; but the reverse is the case with the platform itself, and of the temple we have the south-east wall fallen almost *en bloc*, whereas of the other walls there remains no trace whatsoever; and, though the temple was violently overthrown, yet the argument is not without force, for had it occupied the whole platform and all its walls been destroyed in the same way as that on the south-east, then solid masses of mud brick and mortar such as we found there would have lain also against the north-east and north-west faces of the platform and would have resisted wind-erosion almost as effectually as would standing walls; but we found nothing of the sort. So far as this evidence goes it certainly looks as if the temple had been a small one standing in the south corner of the platform court.

Another argument pointing in the same direction is that whereas against the south-east face there lay under the fallen ruins of the wall a mass of objects belonging to the mural decoration, nothing of the sort was produced by our work along the three other faces.

It is true that we did not everywhere excavate down to floor level, but the generalization made above holds good none the less. Dr. Hall had, as he states on p. 13, merely traced the outline of the platform from the south-west stairs round by the north, west, and east corners to where the burnt brickwork of the south-east wall comes to an end against the crude brickwork of the main stair ramp; his trenches averaged 0·50 m. wide by 0·75 m. deep, and so reached floor level only at the north corner where the wall was ruined down to its foundations: while following along the south-east face he came upon the copper Imgig relief and the lions' heads, &c., and in order to extricate these had to widen his trench to about four metres, but did not work down to the original floor because the objects lay on the top of a stratum of debris a metre thick, which he had not time to remove (p. 25). In 1923 we cleared on the south-east face between the stairs and the east corner out to a width of ten or twelve metres, going down through the stratum where Dr. Hall had found his objects to the white lime floor; on the south-west face a clearing on a similar scale between the south corner and the projection of the south-west staircase produced only one fragment of copper-sheathed timber; at the foot of the south-west stairs a clearing extending as far out as the drain and carried down to floor level yielded parts of one clay flower; on the north-east face we worked round the east corner for some metres and found nothing, and farther along the same wall a clearing some seven metres wide (where the brick pavement is shown on the plan) was equally barren; on the north-west face we went down to ground level on each side of the 'spout' drain and out for ten metres from the wall, and again found no objects. These tests were so thorough that further excavation along the remaining lengths of wall was unnecessary.

We were justified in concluding that either the exterior mural decoration of the temple had been confined to the south-east façade, or, if the other walls had been decorated, they stood so far back on the platform that nothing from them fell over its edge when the building was destroyed. The latter alternative is that supported by the relatively small quantity of debris found against these faces. Even so, since the platform is not so very large and the temple walls therefore cannot have been very far from the edge, we might have expected to find at least a few bits of wreckage from their ornament, if they were ornamented, flung out to a distance and lying near the corre-

sponding walls of the platform, but this was not the case, and we may conclude that in all probability the north-west and south-west walls were bare of ornament; for the north-east wall the negative evidence is, as we shall see, less strong.

It is quite certain that all the objects found between the main stairs and the south angle of the platform adorned the south-east wall of the temple, for the latter had fallen forward in great masses, and the sections of friezes were found still adhering to these with their copper holdfasts embedded in the undisturbed brickwork. It was possible to trace the actual line of the fall; the upper parts of the wall had come down first and had smashed to pieces on the floor, over which their debris formed a layer about a metre thick burying the lower half of the burnt brickwork of the retaining-wall; then the main part of the wall followed suit (Fig. 35). Generally a goodly length

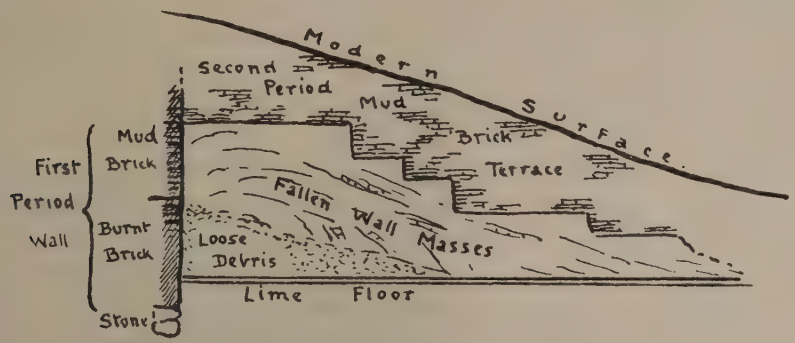


FIG. 35. Section of debris lying against the temple-wall.

of mud-brick wall sagged forwards as if it had been undermined and thrust out from behind and collapsed *en bloc* (thus at the south corner the standing stump of the burnt-brick wall of the platform itself was bent forwards in a curve, and a section cut through the rubbish in front of it showed its upper bricks forced apart and lying radially in a parabola), and might turn a half-somersault in its fall, with the result that, e.g., the three copper bulls numbered in the plan 4, 5, and 6, which had not been broken apart but formed still a single strip over 2·50 m. long secured by its holdfasts to the wall face, lay at an angle of forty-five degrees face downwards and parallel to the wall with their feet towards it, with the wall-mass to which they were attached on top of them and below them the rubble due to the earlier fall. Their original position on the wall-face could thus be determined within half a metre—it was exactly above where they lay. On the other hand, in the angle between the wall and the south-west side of the stair ramp a large section of the temple wall had fallen quite differently, its footings had slipped outwards and downwards, while at the same time it broke across horizontally, so that the original outer face of the lower part of the wall still faced outwards and was nearly vertical, resting on the layer of rubble which covered the pavement, and leaning back slightly against the retaining-wall of the platform, and the original upper part lay face downwards on the top of it. Here, too, there was no possible doubt as to the place from which the wall fragment had

slipped and therefore none as to the real position of the decoration on it—in this case the inlay frieze with the milking scene, and, below it, bulls from the copper relief.

Clearly the position of the objects in the debris is a matter of the first importance for the reconstruction of the temple, but their original position on the building ought to be established before we can argue much more as to the plan.

There is no doubt at all that the copper reliefs of bulls lying down formed one continuous frieze, and that this was on the outside and not on the inside of the building; so much is clear from the position of the fragments. The same is true of the inlay frieze represented by the milking scene, the panels with rows of cattle, and the limestone panel of the bull and eagle, which was found actually attached to the milking scene, and by a few small fragments including parts of cattle, human figures, and another bull-and-eagle panel. The birds also formed a frieze which was probably not the same as that with the cattle. We therefore have certainly two and probably three friezes which have to be assigned to that part of the temple façade lying between the staircase and the south corner.

Of the copper bull reliefs we found twelve with their bodies more or less complete and two extra heads, fourteen animals in all. The length of each beast is 0·55 m., but there are blank spaces between them (where as a rule the holdfasts come), so that the average wall length occupied by each is 0·70 m.; in addition there were found fragments of plain panelling belonging to the same frieze, perhaps inserted in less conspicuous places (one such was attached to the long strip formed by reliefs 4, 5, and 6). Thus the extant remains represent sufficient length of frieze virtually to fill the whole wall space between the stairs and the south corner of the temple, especially if the latter building were set back somewhat on the platform and its front were consequently rather shorter.

These copper reliefs formed roughly speaking a line parallel with the wall of the platform, and most of them were face downwards and relatively high up in the productive stratum. This is because the wall masses to which they were attached had fallen forwards, turning as they fell, on to the other debris, fallen sooner, which was heaped up against the wall face and sloped away from it; when, therefore, a section of the wall collapsed, what had been its base generally lay highest and nearest to the platform, face downwards, and we are able to conclude that the copper reliefs had formed a frieze relatively low down on the temple façade. What the actual height was cannot, I think, be very accurately calculated from the line of fall of the brickwork, for this was naturally irregular and any calculation would be greatly complicated by the temple having been, as I believe it was, set back from the edge of the platform: but on the whole it seemed as if the frieze must have stood at not less than five and not more than eight metres above the level of the lime floor in front of the platform.

Of the inlay frieze of animals much less was found, a total length of 3·65 m. represented by more or less complete panels and scattered figures

or parts of figures which together might account for another 2·30 m., i.e. only some 6·0 m. as against a wall length (supposing that this frieze also ran the whole length of the wall between corner and stairs) of about twelve metres. The best preserved examples lay in the corner by the stair-ramp, where, as has already been noticed, the temple wall had slipped forwards from its base instead of tumbling headlong, and here naturally they were high up in the debris. The smaller fragments were found farther away from the platform than were the copper-bull reliefs, and rather deeper down, closer that is to the floor, not necessarily under a greater accumulation of rubbish, for the modern surface of the mound sloped down eventually to floor level and below it, and a few scattered pieces of the inlay occurred in quite the top soil beyond the foot of the stairs; two small fragments were found by Dr. Hall on the east side of the stairs (see p. 42) and one by us as far off as the ' kitchen range '. The reason for this is clearly that the inlay relief was higher up on the face of the temple wall than was the copper relief of bulls; when the wall fell the upper part of it naturally came down farther from the platform and crashed with greater violence, since it had farther to fall, on the hard floor which here was less protected by loose rubble; and so it broke up more completely and the inlay fragments from the frieze might be flung out to a considerable distance. Only where a section of the wall slid forwards base first instead of falling outwards was the inlay frieze well preserved.

The bird frieze was the most broken of all and the most incomplete; we found in all ten birds represented by complete figures or by fragments, and these give a frieze length of only 2·20 m. No section was found complete. Three bird figures were found together in a line, but with most of the background missing, and can be said to form a section. These lay comparatively close to the platform, the section upright on edge, made fast to a small block of mud brickwork which had fallen vertically though nearly at right angles to the platform; they were deep down, below the main masses of fallen brickwork and in the looser brick rubble which represented the upper part of the temple wall. One bird's head was found by Dr. Hall (p. 42) and a second by us east of the stairs, other fragments lay as much as 10·00 m. from the platform's foot. The facts certainly seem to show that the birds belonged to, or formed, a frieze distinct from that of the milking scene and set higher up on the temple façade; and the character of the frieze itself would point to the same conclusion, for the large scale on which the birds are rendered would harmonize ill with the little figures of men and animals if they were combined in a single composition, and again the simple outlines of the birds and their almost complete lack of internal detail, which contrasts strongly with the delicate modelling of the bulls carved in shell and, though in a less degree, with the limestone figures in the same frieze, is far more suited to a position higher up above eye-level.

So far then we have a scheme of mural decoration consisting of three friezes, the lowest of copper reliefs of bulls, the second of men and cattle, &c., in shell and stone inlay on a black background, and the third of birds also on a black ground; the order is practically sure, the intervals separating

the bands are quite unknown. These friezes run the whole length of the wall from the south angle of the temple to the south-west side of the stair ramp. All of the remains found come from this part of the wall, and none can have belonged to any eastern extension of it.

It is then the more surprising that just these elements of the decoration which we can with certainty attribute to this part of the façade should not be represented in the hoard of objects found by Dr. Hall on the other side of the stairs. It is true that the deposit which overlay and protected the productive stratum thinned off considerably towards the east corner of the platform, but in the angle by the stairs it was as deep on one side as on the other, and the objects on the east side were almost as numerous as on the west, but whereas it was in the angle that we found most of the frieze fragments, Dr. Hall in his angle found things of quite a different sort. He found, as I have said, two small fragments from a limestone panel of men and cattle and one limestone bird's head, all three of which, being here isolated and without context, it is fairly safe to attribute to the other side of the stairs: such scattering of stray fragments from the higher friezes presents no difficulty, but is fully consistent with the conditions observed by us. He also found three copper figures of standing bulls in the round like ours. But the great Imgig relief, the four life-size lions' heads, the smaller heads of two lions and two 'leopards', the stone statue and the fragment of another, found by Dr. Hall, have no counterpart in our finds; and to the long series of copper reliefs of bulls which we discovered there was on the other side of the stairs nothing to correspond but a single head of a bull, and even this was distinguished from those of our series by having a crescent on its forehead (pp. 19, 30, 35; Pl. VII). On both sides of the staircase were found wooden beams sheathed with copper, and on both sides columns of mosaic-work. Nearly all our wooden beams were heavy timbers measuring up to 0·30 m. in diameter, whereas of Dr. Hall's fragments two were of about the same size, one was slightly smaller, and the rest so much more slender that he suggested they might have been parts of a throne. Of the five mosaic columns found by Dr. Hall two were of the same diameter as ours and made with tesserae of the same size (Pl. IV, 3, 6), three were slenderer and made with smaller tesserae and resembled the fragment which we found against the east corner of the building (29 in the plan, Pl. II). Even here therefore the parallel between the discoveries made on the two sides is not so close as a mere enumeration of the objects might imply. Either we must suppose that from the line of the ramp eastwards the decoration of the temple façade completely changed its character, or we must conclude that the temple itself did not run eastward beyond the ramp: but the choice between these alternatives will be simpler if we can first establish positions for some of the other objects.

The four lions' heads (Pls. VIII, X–XI) present least difficulty. As Dr. Hall has stated, two of these when found had attached to them the front parts of the bodies, that is the chest, neck, and shoulders of each; the forelegs seem vaguely indicated and can safely be assumed, but he is of opinion that no more of the body than this had ever existed. Dr. Hall at first suggested that

the heads came from a throne, but they seem too large for this, and again two beasts would be more appropriate than four to a construction of the sort. The most likely use for the foreparts of animals cut off just beyond the shoulders is as architectural ornaments, the Greek *protomae*, showing the beast issuing from the face of a wall. For such a principle of ornament there is plenty of analogy in later Mesopotamian art and in the art of the Hittites, and the general rule there is that the animals flank the entrance of a doorway: it is more than probable that the Hittite and Assyrian practice is based on a very ancient tradition.[1]

The monumental staircase which led to the top of the platform can scarcely have done otherwise than correspond to a door in the façade of the temple, and if amongst the objects found at the stairs' foot there are some which are peculiarly suited to the decoration of a doorway, this probability is practically confirmed; the lion protomae are so suited, and I shall show later that other of the objects found close by would also fit in best with a temple-entrance. Assuming, therefore, that there was a door at the head of the stairs, we may next inquire what the fashion of that door is likely to have been.

The only actual building of anything like contemporary date from which we can argue is the Sumerian palace at Kish, which is known to us from photographs (Langdon, *Kish*, Pls. VIII–XI), but the plan of it has not yet been published: here we have a doorway approached by a flight of steps set back in a double recess with deep reveals on either side of it. The front faces of the reveals are precisely the places where by later analogy we should restore the lion figures of al-'Ubaid. In the Kish palace the sides of the reveals are deep enough for the whole flank of the animal to be shown in profile, like the man-headed bulls of an Assyrian palace; at al-'Ubaid we should assume shallower reveals with the lion protomae set in the centre of the front face of each instead of at the angle as in Assyrian art.

In the milking scene from the inlay frieze (Pl. XXXI) we see a building which obviously must be contemporary with the temple. This is a byre made of a stockade of upright reeds fastened together with bands of rope, and it has a door flanked by two buckled spears and surmounted by a panel (or window?) having a crescent above; on each side of the door are heifers, of which, whether intentionally or by primitive convention in perspective, only the foreparts cut off behind the shoulders are shown. It might seem hazardous to argue from a country byre to a richly decorated temple built of brick, but there is much justification for so doing. The temple of Nin-khursag built by Ur-Nammu in the town of Kesh is variously called the 'Protection of the Divine Enclosure', the 'Brilliant Grove', and the 'Solid Reed Construction',[2]

[1] The Assyrian parallel is valid for position rather than for type, since in Assyria the whole flank of the beast was shown in relief on the inner face of the jamb: in Hittite art both the corner-relief (like the Assyrian) and the true *protomae* are employed. In my drawing (Pl. XXXVIII) I have followed Hittite analogies and have perhaps shown less of the body of the lions than the very fragmentary remains might warrant. [If it is considered that the remains of the lions' bodies really show that they were originally intended to represent the whole animal as far as the tail, not mere *protomae*, they must have been sitting up in the style of Greek lions, which is highly improbable. Personally, I agree with Mr. Woolley that they are long *protomae* (see p. 30). H. H.]

[2] Legrain, *Museum Journal*, Philadelphia, 1924, p. 160. Kesh is not to be confused with Kish.

and the names prove that the shrine of this patron goddess of the farmyard goes back to the primitive farm building. The byre of the inlay frieze is indeed something more than the shed of the ordinary farmer, for the men who work round it are not labourers but priests. The stela of Ur-Nammu found at Ur shows that certain distinctions of hair and dress which are noticeable on early figured scenes and have generally been taken to denote differences of race are in fact differences of social status; the gods have long hair and beards waved like running water and wear the horned caps of divinity; the king has long hair and a beard elaborately combed and curled, and wears a simple close-fitting skull-cap and a fillet or turban round it, and his dress is a skirted garment reaching from neck to ankles and a shawl or cloak which envelops his whole body; the common workman has his hair fairly short and brought down in a heavy curl over forehead and neck, a short natural beard, and a tunic dress; the priest is altogether clean-shaven and wears the apron-like skirt which is derived from the ancient ' kaunakes '. In the milking scene all the figures are on this analogy those of priests, though one isolated fragment giving the head of a man with short hair and beard proves that laymen also were represented on the frieze. We may conclude that the byre is at least the sacred farm attached to the temple (like the Drehem farm near Nippur in the time of the Third Ur Dynasty), if it is not a conventional rendering of the traditional temple itself. It is not wholly fanciful to see in the friezes of the al-'Ubaid temple a decorative motive derived from the horizontal bands of rope binding which secured the primitive reed walls of the byre; indeed, in the building shown on the early steatite vases already cited (Figs. 26, 27), which marks a more advanced stage of construction than the byre of the inlay panel in that its walls are a mixture of matting and brick, there is a frieze running along the façade on the level of the door lintel; the upright spears which flank the byre gate may well be represented by the columns of the temple porch, and the heifers on either side of the door offer an unmistakable parallel to the copper lions in the reveals of the temple gate (see p. 30).

In the inlay frieze it is quite clear, and on the steatite vases it is probable, that the door is set in a projecting gate-tower, and in the former we see above the door lintel a black panel inset in the wall, while in the latter there is something not altogether dissimilar, though here the proportions have been so far modified to fit the subject into the space that it would be rash to say exactly what is meant by the apparent panel divided by vertical bands into seven fields. In the al-'Ubaid ruins we have in the Imgig relief a panel which might well have stood over the door, and there is reason to think that the door was set in a projecting tower.

In attempting to decide the height of the platform we found that the best evidence was given by the drain at the back and by the south-west stairs, which agreed well together, whereas to make the estimate so reached harmonize with the slope of the main stairs and the distance of the stair foot from the front of the platform it was necessary to assume that the steps did not occupy the whole length of the stair ramp, but that there was a flat landing

at the stair head on the level of the platform terrace and affording easy access to it. If the temple stood near to, though not actually upon, the edge of the terrace, and had corresponding to the platform steps a projecting entrance, the projection must have come forward over the top of the stair ramp, since there was no room for it elsewhere, and, conversely, the length of the ramp, which necessitates a flat space at the top of it, would be explained by the need to accommodate the projection planned for the temple entrance.

On both sides of the staircase there were found mosaic columns and palm-logs sheathed in copper, these being, as I have said before, of different sizes and dimensions. On the west side we found two complete mosaic columns lying one above the other parallel to the platform front and 3·00 m. from it, and with them two more broken copper-sheathed logs again almost parallel to the wall; all lay on the small rubble fallen first from the upper part of the temple building, and below the reliefs and great masses of brickwork which represented the lower part of the wall of the same; it was therefore certain that they had been thrown down here at a comparatively early stage of the temple's destruction, before the walls had fallen. This fact alone makes it practically impossible for the columns to have formed part of the interior decoration of the temple, for they could not have fallen over the wall while that was still standing, and it is equally absurd to suppose that the destroyers carried them from inside the building and threw them down, for apart from the pointlessness of such an act it would have been impossible to remove them without bringing the roof down on the workers' heads, nor, had they been carried to the doorway, could they have been flung from the ramp into the position in which we found them, for that would have meant an end-on throw which with the length and weight of the columns would have been an almost superhuman feat. To lie as they did, the columns must either have fallen from the edge of the platform immediately above, or have been standing upright on the top of the ramp and from there come to the ground turning a somersault as they fell. Either, therefore, there was a colonnade along the front of the temple, or there were columns at the door of it.

The discoveries at Kish prove that a colonnade was not at all an impossibility at this period, but here the evidence is not in favour of such a feature; only two mosaic columns were found on this side of the stairs, and they are so well preserved, and the other objects from this part of the façade are so thoroughly representative (thus the frieze of copper bulls is not far from complete) that it would be difficult to explain why all the other columns of the series, had it existed, should have disappeared and left not the least trace of themselves; moreover the length of the mosaic shafts at least is against a colonnade, for they measure only 2·30 m., and if there had been a colonnade the mural decoration must surely have been under and not above the roof of it, but under a roof only some two and a half metres high there is not room for the various decorative elements for which we have to account—the three friezes already described and the statues of bulls in the round and the flowers of which we have to speak later. On the other hand, 2·30 m. is a very reasonable height for a door.

The copper-sheathed palm-logs are of two or three sorts, distinguished by their different thicknesses; some are too slender for columns and may have been roofing timbers, others are as much as 0·30 m. in diameter and may well have been columns. All were broken, but one of the thickest shafts was almost complete, and its parts fitted together gave a total length of approximately 3·60 m., and all the other pieces of the same diameter found on the west of the stairs seemed to belong to one shaft, making thus a pair of similar dimensions. The arguments in favour of the mosaic columns having stood outside and not inside the temple and at the door rather than along the façade apply equally to the heavier copper-sheathed examples, and it is natural to suppose that they too came from the entrance of the building, but we can only do that if we can explain the disparity in the lengths of the two types. Now it has been suggested that the Im-dugud or Imgig relief stood over the lintel, and if it did so it presumably had some kind of support. The height of the Imgig relief is 1·07 m., and if to this we add enough for a timber frame enclosing the whole we shall get a total of about 1·30 m., which is just the difference between the lengths of the mosaic and the copper columns. Further we have to account for the many fragments of copper-sheathed wood found on both sides of the stairs which must be judged too thin for column shafts and more suited to have been roofing timbers—and for roofs of wood overlaid with metal we have analogies in plenty, in Solomon's temple and in the inscriptions of Mesopotamian kings going back to the days of the Third Dynasty of Ur. The simplest suggestion and one which accords best with the evidence appears to be that shown in the restoration on Pl. XXXVIII. There is a projecting tower in which is a door set between shallow reveals ornamented with the foreparts of lions in copper. Above the lintel is the copper Imgig relief in a wooden frame supported by the two mosaic columns which stand immediately in front of the door jambs: from above the top of the relief there projects from the face of the gate-tower a pent-house roof made of copper-sheathed timbers whose outer corners are supported by the two copper columns; tower and porch alike rest on the top of the ramp and fill up the greater part of the flat space between the top of the steps and the line of the temple frontage. Judging from certain remains of copper beading, L-shaped in section, which were found alongside the ramp, the door itself was probably of wood decorated with panels of which the frames were sheathed with copper. This restoration would in my opinion account better than any other for the position in which the lions and the Imgig relief were found. The latter stood on edge, right way up, facing outwards and almost vertical, leaning back slightly towards the wall but separated from it by some twenty centimetres, the left hand end of it only some 0·60 m. from the side of the ramp; it rested on the mixed rubble and the brickwork masses must have fallen later than it, though owing to its position close to the wall face they did not exactly cover it. The lions lay in front of it, roughly in a row, facing outwards. If the enemy who destroyed the temple first pulled out and toppled down on to the floor below the two copper columns supporting the pent-house roof, this would have collapsed on to

the top of the ramp, and in order to clear the ground for their further work they would naturally have tumbled its loosened timbers to this side and that off the ramp, where in fact we found them. If the mosaic columns were next wrenched from their places (the obvious way to do this would be by a rope tied high up round the shaft), and that on the right of the door came away first, then the Imgig relief could very easily have slipped and fallen into just the spot where Dr. Hall discovered it, falling sideways and so coming to ground vertically; the wooden frame would be leaning against the wall, and the decay of this would account for the interval between the copper and the brickwork. The lions must have been thrown down one by one, and their rough alignment in the rubbish is perhaps accidental, or possibly the spoilers meant to carry them away and stacked them side by side for removal, just as on the other side of the stairs they piled the bull statues one on top of the other, and then left them there: this might account for only four figures being found, for if Dr. Hall's three bulls belonged to the east side (*v. infra*) there ought to have been eleven on the west, whereas there was no trace of more than four.

Of the objects found on the west side of the stairs there remain to be considered the copper statues of bulls and the artificial flowers. The former were lying all in a heap, one on the top of the other, and had evidently been thrown or placed there, so that, though we may perhaps assume that they would not have been carried far, yet their exact position cannot be greatly stressed as evidence for their original place on the building. But it does seem to me legitimate to conclude that they too came from the outside of the temple, for otherwise they would scarcely have been brought out through the door and carried down the steps (for they were too far from these to have been flung from the top landing to their present position), and then heaped together as we found them; it is much more likely that they fell or were thrown from the wall immediately above and were then collected into a heap, perhaps to be carried off as trophies. Therefore I should assign the bulls also to the part of the façade between the stairs and the south corner of the temple. Now the four bulls were true statues in the round, faithfully worked on the back as well as on the front, but as in all of them the head was turned sharply round over the shoulder so as to be facing to the front when the body of the animal was seen in profile, it is clear that the animals stood sideways to the spectator and were meant to be looked at only from one side. This sharp turn of the head is a commonplace in Sumerian art and can be paralleled by a number of reliefs, of animals e. g. by the bulls in the lowest frieze of this same temple, by the bulls on the steatite vase found in the E-nun-makh temple at Ur (v. *Antiquaries' Journal*, iii. 4, Pl. xxxiv, Fig. 1) and by various other decorated vases; in all these the ornament is in relief and only the head of the animal projects in the round, and this fact in itself amounts to a proof that the bull statues, though completely in the round, were, so to speak, detached reliefs, standing against a background, and by their detachment from it gaining in freedom and realism. The natural place to which to assign them is the base of the temple wall; then we should have gradation in the successive bands of

decoration on the temple front; at the bottom the standing bulls in the round, above them the continuous frieze of reclining bulls worked in high relief and with their heads boldly projecting from the background, above these the inlay panel carved in shell and limestone, its figures of beasts and men relieved only by very delicate modelling, and above these again the row of birds, mere silhouettes on a black ground.[1]

It is inherently probable that a building set upon a platform should be really set upon it, i. e. should stand back from the platform's edge far enough to make a distinction between the two elements of the whole scheme, rather than that the platform wall should be carried up into the superstructure without any apparent break; and in Sumerian architecture the stepped building is a familiar form and must depend upon a very old tradition; it is certainly not unreasonable to suppose that the terraced temple which in the time of the Second Dynasty (?) of Ur occupied the al-'Ubaid site shared this feature in some degree with its predecessor.[2] The manner in which the temple walls have fallen over the edge of the platform in great masses proves conclusively that the step, or steps, took up but little space, but the existence of a narrow step along the south-east façade is not inconsistent with any of the evidence from the ruins. Both inherent probability and what we know of Sumerian style would therefore justify us in supposing that there was a step or ledge along the foot of the temple, and such a ledge is precisely what is required as a standing-place for the bull statues.

Of the artificial flowers we found on the west side of the stairs rather more than fifty complete or nearly complete examples and fragments representing at least as many more: on the east side there were perhaps fifteen. Dr. Hall, who found the first specimens, concluded that they were rosettes for wall decoration, the long stems being let into the wall and the flowers appearing in relief against the wall face; he compared them with the nail-like cones of baked clay which decorated with a mosaic pattern the mud-brick walls of the temple at Warka (Figs. 15 and 16, p. 49 f.; and Loftus, *Travels and Researches*, pp. 174 ff. and 188 f.). This analogy would appear convincing enough, and it seems to derive further support from our own discovery at Ur of clay dedication-cones of Ur-Nammu let into the face of his terrace wall of E-temen-ni-gur with the smooth round heads exposed and making, with their more or less regular rows, a sort of pattern on the mud-brick wall.[3] But the argument is not so strong as it looks at first sight. The Warka cones (similar cones are common, but have not yet been found in position, at Eridu (=Abu Shahrain), at Ur, and at al-'Ubaid) were certainly purely decorative; they are slender, smooth, and sharp-pointed, and their length varies between four and (rarely) ten centimetres; they were set close to one another and were driven into a thick plaster of mud which

[1] I think it highly probable that the limestone figures were painted; this would explain the difference of the materials employed in the milking-scene frieze, the shell figures being left white and the stone ones coloured, and would further justify the summary treatment of the birds and their almost complete lack of detail.

[2] For this effect in a later building compare the temple E-dublal-makh at Ur in the time of Kurigalzu (*Antiquaries' Journal*, vol. v, Pl. XLIII, XLIV).

[3] *Antiquaries' Journal*, vol. v, p. 351, Pl. XXXI.

was applied to the wall after that was built. The stems of the artificial flowers are from 0·20 to 0·35 m. long, thick and blunt-pointed, and in many there are near the point two small bars projecting from the stem; no mud plaster was ever thirty centimetres thick, and I defy any one to drive one of these flower-stems into a mud-brick wall half an hour after it was built without smashing the flower-head; indeed it would be impossible to do it at all. Consequently, if the flowers were let into the wall as rosettes they at least were not used in the same way as were the Warka cones, and the analogy has to that extent broken down. The Ur-Nammu cones afford a better parallel in that they are thick-stemmed and blunt, and they were not driven into the wall after its completion but were laid between the bricks during the course of construction, which could have been done with the flowers; but the real object of the Ur-Nammu cones was not wall decoration (this was a very secondary motive even if the heads of the cones showed and were not covered with mud mortar, which is not quite certain) but the recording of the king's piety, and this record, which would have had no permanence if stamped on the mud bricks of which the wall was made, was inscribed on the stems of the cones; what mattered then was the stem, which was concealed in the brickwork, not the head of the cone which may or may not have been visible—the reverse of what was the case with the flowers. Here, too, then the analogy based on the general resemblance of shape between flower and cone breaks down if we regard the motives behind their use; indeed, the same analogy might be used to show that the flowers were buried out of sight in the heart of the brickwork as were the cones of Warad-Sin at Ur or below the floor like those of Sin-balaṭsu-iqbi![1]

Every flower-stem has, near its point, a small hole drilled through the clay before baking, and every one has high up under the calyx, just where the wire fixing in the corolla comes out, a horizontal nick cut in the soft clay. These features (which do not occur on dedication-cones) must have a purpose. The hole is only large enough to allow a string or wire to pass through, and in some cases a copper wire was actually found in it; the obvious purpose for the nick, and the only one I can think of, is to prevent a string or wire looped round the tapering stem from slipping down it: both of these imply a use of the flowers very different from that suggested before, for two strings or wires attached to the stem at the bottom and at the top respectively could only be of service if the stems were free, and certainly were not wanted if they were embedded in brickwork. I venture to suggest that two strings were passed one through the holes and one round the top of the stems of a number of flowers and the ends made fast to uprights or to staples in the wall; in this case with the point of the stem resting on the ground the flowers would stand upright with their heads in the air or could lean this way and that according to the tightness with which the top string was tied; the small knobs on many of the stems I would explain as buds. Standing free in this way the flowers would have a very naturalistic appearance, and might be so arranged as to give to the copper bulls the air of pasturing in a flowery

[1] *Antiquaries' Journal*, vol. v, p. 356, Pl. xxxii, 2, and p. 368, Pl. xxxv, 1.

meadow; they might even sway in the wind! For this the step along the base of the temple wall would have to be a double one, as the height of the flowers is disproportionate to that of the bulls and their solid heads would hide too much of the animals; in the restored drawing the flowers accordingly are made to occupy a lower ledge and the bulls appear just above them. I am aware that this theory as to the nature of the flowers is the most controversial point in the whole reconstruction of the temple, and I do not myself consider that it is proven, but it does receive support from the conditions in which they were found. Had they been embedded in the wall then, considering in what very large masses the sections of the wall had fallen, the chances were all in favour of some at least being still embedded in the brickwork, but not a single case of the kind was remarked. All were buried in broken debris, and for the most part they were scattered in complete disorder. The only exception was close to the great block of brickwork to which were attached the three copper bulls joined together in one strip; about a metre closer to the platform wall and at about the same level as the bulls there were five stems in a row (the heads were broken off) roughly twenty centimetres apart from one another, lying parallel to the bull frieze and tilted at exactly the same angle as it; had they originally been driven horizontally into the wall face they ought to have been lying at right angles to the face of the frieze; as it was, if their position means anything, it means that they stood upright, lower than the frieze, and on a more advanced plane, i.e. exactly as they are shown on the restored drawing. Moreover, had the flower stems been embedded in the brickwork then, since the latter fell in very large blocks, the flower-heads might well have been smashed, but one would have expected to find many of the stems intact, but actually we found more complete calyces than stems. This should mean that the stems were as much exposed to damage as the flowers, that, in other words, they were standing free.

We have accounted for virtually all the objects found on the west side of the stairs and for some of those from the east, and the decoration of the temple wall from the south corner of the building to the door, and of the door with its porch, has been restored with a greater or less degree of certainty. Now there arises the question whether the door was central to the temple façade or whether this was continued further towards the east.

It has already been stated that the contours of the mound's surface before digging started favoured the theory that the temple was confined to the south angle of the platform and did not extend far to the east, where there was no more debris underlying the Second Dynasty (?) terrace than would be accounted for by the collapse of the platform itself. It has also been remarked that the objects found on the east side of the stair ramp did not by any means correspond to those found on the west, and now that so many of these objects have been eliminated from the discussion by being assigned to definite places on the temple, and a scheme of decoration has been worked out which in the case of the wall to the west of the door may be taken as correct at least in general principle, we are in a better position to appreciate

the evidence afforded by the residue of the objects discovered by Dr. Hall. These are two small stone statues of seated men, two copper ' leopard ' heads, two copper heads of lions on a smaller scale than those assigned to the main door, fragments of mosaic columns, two similar to those assigned to the main door, and three others made with smaller tesserae and therefore not part of the same series, three copper-sheathed columns, four small copper heads of birds, one copper bull's head like those of our reclining bull-reliefs but distinguished from them by having a crescent on the forehead (Pl. VII), and three copper figures of bulls (see pp. 15 f., 29 f.). Only the last give any hint that the ornamental motives on that side had been repeated on the east;[1] the few little isolated fragments of inlay scattered here have been not unreasonably attributed to the western wall, and, since there is nothing to explain the total disappearance of all the rest of the mural decoration if it ever existed, we must conclude that either the wall did not run on much beyond the door, or, if it did, there was at the door a complete change in the decoration of the façade. If we incline to the latter alternative we have still to face the difficulty that there is practically no more in the remains to illustrate the fresh scheme of ornament than there was for the old; the mosaic columns and the copper-sheathed columns (Dr. Hall's larger pieces) can best be attributed to another door, and so too the lion ' protomae '; we are left with only the ' leopard ' heads, one bull's head, and the three bulls for the whole length of the wall—a striking contrast to the wealth of objects found on the other side, where the conditions ought to have been the same. In favour of the view that the door was not central to the temple front but at its east end, perhaps some three metres from its east corner, we have besides the surface contours the following arguments: (1) such a wall-length between the door and the corner of the building explains the three copper bulls; (2) artificial flowers were found on this side of the stairs, showing that that particular motive was carried on on this part of the temple front, but there were far fewer here than on the west side, implying that the wall so decorated was shorter; (3) the copper bull's head with the crescent on its forehead (B.M. 118015) might have come from a frieze of reclining bulls like that on the other side of the stairs, and if so the fact that it was the only one found here is an argument in favour of such a frieze having been short; (4) the existence of an open courtyard between the N.E. end of the temple and the N.E. edge of the platform would explain the finding at the foot of the S.E. platform wall of objects whose original position would seem to have been either along the N.E. side of the temple or inside it; if there was in the N.E. wall of the temple a doorway giving on to a court, it would have been easy for the destroyers to throw down over the S.E. platform edge objects which formed part of the door decoration or were stored inside the shrine; (5) the foundation tablet of A-anni-padda was found high up in the rubbish against the foot of the stairs by the south corner of the parapet; judging by the practice of later times it was originally

[1] It might be suggested that these really belong to the west side, but the conditions in which they were found are entirely against that: see plan (Pl. II), and Dr. Hall's description, p. 15 f. Like the bulls on the west side, they had been thrown down and were not simply fallen.

embedded in the brickwork low down in a corner of the building (i. e. of the temple, not of the platform); the manner in which the temple wall had fallen, and particularly at the south corner, where it had been thrust straight forward, makes it, I would not say impossible, but highly improbable, that the tablet came from this corner; I am not able to say how the wall east of the stairs fell, but if the east corner was only about three metres away from the stairs the tablet could far more easily have come from here; moreover the south corner fell early, at the time of the general destruction, as is shewn by the small amount of loose debris beneath it, whereas the tablet, lying ten metres away and high up, must have come here relatively late, and this too tends to connect it with the east corner of the building, whose lower stump (containing the foundation-deposit) may well have stood up from amongst the ruins for quite a long time.

I therefore hold that the temple façade ended a very short distance east of the doorway, and that beyond it there was an open court extending to the north-east side of the platform; and it is on the whole probable that the decoration of the west side was continued on the short length of wall east of the door. The total disappearance of the friezes would not present such very great difficulty if there had never been more than three metres' length of each: indeed we need only assume that this short stretch of wall was not wholly overthrown but remained standing and exposed for some little while.

There remain the other objects found by Dr. Hall, and in the third argument given above I have indicated the manner in which I should account for them. The temple must have had access to the courtyard lying to north-east and north-west of it, that is, it must have had a door in one of those two walls. Some of the mosaic columns and the copper lions repeat on a smaller scale the decorative motives of the main entrance, and one need have little hesitation in assigning them to the doorway whose existence we are bound to postulate. Dr. Hall found three fragments of mosaic columns, slender and made with small tesserae, against or close to the east end of the wall; we found a piece (the end of a shaft) 0·22 m. long standing on end and leaning against the east corner of the platform (Pl. II, 29); if these belonged to the same column it had been broken before it was thrown down here; if they represent different columns both must have been broken before they came into their present positions, though the piece against the corner may have been a good deal longer than twenty-two centimetres, the upper part having perhaps decayed gradually with the denudation of the soil. Certainly this piece which we found had all the appearance of having been tipped over the edge of the platform from immediately above where it now stood, and if there was no building at that point it must have been dragged there to be flung over; Dr. Hall's columns also, since they did not form part of the south-east façade, must have been brought to the platform edge from some distance; if we have to find a common point of departure for them all it should be as near as possible to their finding-spot, and that would be somewhere on the north-east face of the temple. The

theory is that these objects, since they could hardly have fallen here of themselves, were deliberately flung down by people engaged in destroying the temple; if the door whose porch they were demolishing stood at the back of the building they would scarcely carry its timbers all the way round to the front in order to throw them over from the terrace, whereas if it were on the north-east their easiest course would have been to throw them just where the column fragments were found. If the shafts were broken up beforehand and only some of the bits tossed over the platform edge, the rest would certainly have perished, whether it was left on the platform or flung over the north-east wall, where there was no wreckage from the temple fabric to protect them. The same holds true for the lions. The statues and other votive objects must have been inside the shrine, and since they would be carried out for destruction by the same door, some at least of them were likely to have been thrown or tumbled over the south-east side of the platform: actually the two statues, the heavier objects, were lying east of the stairs under where the open terrace is assumed to have been, and the inscribed vase fragments were found thrown out as far as the foot of the staircase. Whether the north-east end of the temple was decorated otherwise than by the ornamental doorway, and if so whether the leopard heads belonged to this decoration or were part of the doorway scheme (e. g. heads of beasts in a copper relief panel above the door), or, as I have suggested to Dr. Hall (pp. 19, 32), formed a double head of the Im-dugud or Imgig bird in the great copper relief, there is absolutely nothing to show.

The main weakness of my reconstruction, in my own opinion, is that it fails to account satisfactorily for the two fragments of mosaic columns found by Dr. Hall (Pl. IV, 3, 6), which in diameter and in size of tesserae correspond to those discovered by us on the west side of the staircase. I have assigned the smaller columns to the supposed north-east door because they harmonize better with the smaller scale of the lions assigned to the same place, and in that case there is no room there for the larger columns. The position in which Dr. Hall's larger columns were discovered, relatively close to the east corner of the building and nearly vertical, scarcely connects them with the stairway entrance, and they certainly are not fragments broken off from our columns, for the latter were complete. One might suggest that at the doorway on the top of the stairs there were four mosaic columns, two on either side, set close together so as to give something of the effect of the façade at Warka with its half-columns decorated with a mosaic pattern of cone bases: but two columns could hardly be fitted into the narrow space of the jamb fronts, if these are correctly restored. The suggestion has certain advantages but would necessitate modifications of the plan which are not without serious objections, nor do I see quite how the fragments could have come into their actual positions if they really belonged to the stair-head. On the whole I have preferred to adopt the simpler scheme of restoration with single columns and to leave Dr. Hall's larger columns, like the bird's heads found by him, unexplained.

On Pl. II I suggest the kind of ground-plan which is implied by the

arguments put forward above. The temple is a rectangle measuring about eighteen metres in length by about eleven metres in width; the length is of course dictated by the distance between the east angle as fixed by the above arguments and the west corner of the platform, allowing for a set-back from the platform edge of anything up to one metre; the width allows for a similar set-back along the front and assumes that the gateway, which must have provided communication between the main and the subsidiary platforms, opened on to the courtyard of the main platform and not into the shrine; for obviously there must have been some means of direct access from the ground to the terrace without passing through the shrine, and since the south-east stairs lead straight to the temple door, the south-west stairs must have led *via* the smaller mud-brick platform to the court behind the temple. The south-east doorway is shown as described above, projecting over the landing at the head of the stairs, and the smaller door from the shrine to the terrace court is put in the centre of the north-east end of the building. About the internal arrangements of the shrine and about the height of its walls or of the gate-tower it would be unprofitable to speculate.

In the sketch of the restored temple on Pl. XXXVIII the burnt brickwork of the lower part of the platform wall is left exposed and the mud brick above is shown as plastered and whitewashed. It is true that on the masses of brickwork fallen from the platform and temple walls we observed no trace of whitewash, but this is not decisive, for with the wall lying face downwards and with its surface much broken by its fall remains of whitewash if any remained at all would be very fragmentary and might easily have escaped our notice; but the plastering and whitewashing of mud brick was so common a practice that we may safely assume it here. In the case of the temple wall I have suggested that the lowest part, behind the standing bulls, was panelled with wood like the parapet-wall of the stairs; the only justification for this is the finding of a fair number of loose copper nails scattered along the floor below the wall, and the possibility that a conservative tradition might retain something more definitely reminiscent than panelled brickwork of the primitive half-timbered building which was the lineal descendant of the reed byre. The upper part of the wall is shown as whitewashed.

If the facts observed in the course of the excavation of the ruins have been rightly interpreted we can recover a fairly complete picture of the temple of Nin-khursag as it stood in the days of A-anni-padda more than five thousand years ago. At least I can say that no single detail has been admitted which did not seem to be approved by such evidence as was forthcoming, and that evidence I have endeavoured to state without prejudice.

CHAPTER VII

THE INSCRIPTIONS FROM AL-'UBAID AND THEIR SIGNIFICANCE

By C. J. GADD.

I. THE INSCRIPTIONS

THE following inscriptions and inscribed fragments have been recovered from al-'Ubaid:

On stone.

B. M. 114206. Torso of a limestone figure, found by Dr. Hall in 1919. It bears on the back of its right shoulder five 'cases' of archaic characters (see Pl. VIII, 6; XL; and fig. 2, p. 19; also *Journal of Egyptian Archaeology*, ix. p. 195).

1. *kur-lil*	Kur-lil,
2. *ka-gur unu*^{ki}	keeper of the granary of Erech,
3. ^{d}*dam-gal-nun*	(the goddess) Damgalnun
4. *mu-tu*	he fashioned,
5. *ê mu-du*	(her) temple he built.

1. The name is uncertain, since the signs might be read in various ways.

2. *ka-gur*. The second sign is that listed by Thureau-Dangin, *Recherches sur l'origine de l'écriture cunéiforme*, no. 136. The title of this office is found in an archaic bowl-inscription from Lagash (*Découvertes en Chaldée*, partie épigraphique, xxxvii), of about the time of Ur-Ninâ, then in the cones of Urukagina (ibid., li and lii, col. 8, 26). It is not uncommon in the Farah tablets (*e. g.* Deimel, *Wirtschaftstexte aus Fara*, no. 7 (13)), and in the 'pre-Sargonic' tablets of the time of Lugalanda and Urukagina (*e. g.* de Genouillac, *Tablettes sumériennes archaïques*, no. 12, Rev. col. vii, end), and it appears also in the period of the Third Dynasty of Ur (*e. g. Revue d'Assyriologie*, xiii, 18). The inversion of the signs here is similar to that of ll. 3 and 5; it is characteristic of early texts down to the time of Eannatum, see below, p. 134.

3. Damgalnun(na) is ordinarily Damkina, wife of the god Ea of Eridu, but the name ('great fruitful wife') is doubtless here applied as an epithet to the mother-goddess Nin-khursag, cf. *Revue d'Assyriologie*, xix, 181 n. 7.

4. *mu-tu*. The second sign is Thureau-Dangin, *op. cit.*, no. 147, *cf.* its form in Ur-Ninâ and Eannatum. For the sense of carving a statue *cf.* the inscriptions of Ur-Ninâ, *passim*, and Gudea, Statue C, col. iii, 15–17 &c.

B. M. 114207. Trachyte statue of a Sumerian official, found by Dr. Hall in 1919 (Pl. VIII, 4, 5; IX; and see pp. 19, 27). At the back of the right arm, where it joins the shoulder, is engraved a sign identical with the second sign in line 1 of the preceding inscription (*lil*). Around this the surface of the stone is decayed and no further traces of inscription are to be seen. It is probable that this statue also represents Kur-lil.

TO. 159. Fragment from near the rim of an alabaster vase. Six lines of inscription partly preserved. Cf. Pl. XL, p. 80.

1. *dumu*	son of . . . .
2. *ê* ^{d}*nin-ḫ*[*ur-sag*]	who built the temple
3. *in-du-a*	of Nin-khursag;
4. *dusu ku*(*g*)	the holy carrying-pad
5. *mu-na-il* (?)	he uplifted (?) for her,
6. . . . *zi* (?) *AN* (?) . . .	. . . .

2. ^{d}*nin-ḫur-sag* may be restored with confidence, and agrees with the remaining traces of the second sign. 4, 5. Compare Ur-Ninâ (*Découvertes en Chaldée*, partie épigraphique, xxxvii, no. 10, col. iv, 3, 4). The king assumed the basket-man's head-cushion in order to carry the first load of earth for the building.

TO. 160. (B.M. 116982.) Marble foundation tablet. Seven lines of inscription, the last being engraved on the lower edge. Cf. Pl. XXXV, XL, p. 80.

1. ^{d}*nin-ḫur-sag*	Nin-khursag;
2. *a-an-ni-pad-da*	A-anni-padda,
3. *lugal ur*[*i*^{ki}]	king of Ur,
4. *dumu mes-an-ni-pad-da*	son of Mes-anni-padda,
5. *lugal uri*^{ki}	king of Ur,
6. ^{d}*nin-ḫur-sag-ra*	for Nin-khursag
7. *ê mu-na-du*	has built a temple.

1. ^{d}*nin-ḫursag* may also be vocative. For another name of this goddess see Chiera, *Sumerian Religious Texts*, p. 14 [Su(du)nun(na)]. 3. The line is unfinished, the engraver having stopped short at the right edge of the tablet. 4. Mes-anni-padda, i. e. 'hero called by (the god) Anu'; cf. A-anni-padda, 'son called &c.', and Meskemgašer of Erech, Meskem-Nannar of Ur. 7. *mu-na-du* without the infixed *šù* found in similar formulae at end of TO. 287 and U. 26.

TO. 219. Fragment from rim of alabaster bowl, with traces of two lines of inscription; cf. p. 80.

1. ^{d}*en* . . . .
2. *ki* . . . .

TO. 220. Small fragment from rim of alabaster bowl, with remains of three lines of inscription; cf. p. 80.

1. *lugal* . . . .
2. *PA-TE-SI* . . . .
3. *kiš* (?) . . . .

TO. 219, 220 may be parts of the same object. The script in both cases is similar to that of TO. 159.

TO. 287. (Philadelphia.) Fragment from rim of large black diorite bowl. Six lines of inscription, the beginnings of which are crowded against the lip of the bowl in such a way as to obscure the signs in one or two places. Cf. Pl. XL, p. 80.

1. *in-du-a*	. . . who built . . . .,
2. *pu-ku*(*g*)	the holy well
3. *na-il*	he sank (?);

4. *a-an-ni-pad-da-šu* for A-anni-padda
5. . . *zi* (?) *ur-$^{d.}$nannar-ka* the . . . . of Ur-$^{d.}$Nannar
6. [*a*]-*mu-na-šu-ru* he dedicated it.

1. *Cf.* the text of TO. 159, 2, 3, which is possibly to be restored here.

3. Owing to the crowding mentioned above it is likely that *mu* has disappeared from the beginning of this line, since the grammar requires *mu-na-il*, lit. ' he *raised* ', the exact opposite of the sense which the context demands. No other instances of *il* with the meaning of ' sink ' can be quoted, and it is therefore possible that the verb has its true sense here also, and the expression gives the point of view of one standing at the bottom of the well after it was dug, to whom it would seem to have been ' raised '. In a similar case Eannatum (Brick B. iii, 3, 4) uses the ordinary word *du*, ' build, make '. This, however, is doubtful, and *pu* may have some other meaning; *cf.* TO. 159, 4 and 5.

5. Beginning of the line uncertain. 6. *a-* must be restored at the beginning to complete the formula. For the infixed *-šu-* cf. last line of U. 26; this is nearly always modified elsewhere to *-ši-*, e. g. Entemena, Cone, vi, 8, *ḫe-na-ši-gub*, but is found in the ' pre-Sargonic ' tablets in the formula *e-šu-šam*, ' he has bought from . . . ', *e.g.* Thureau-Dangin, *Recueil de tablettes chaldéennes*, no. 16, Obv. 2, 2, and in the cones of Urukagina. TO. 160, last line, in a similar case dispenses with the directional infix, but there the preceding indirect object has the dative suffix *-ra*, not *-šu*, as here. B. M. 114206 has no infix at all. *šu*, corresponding with the form used with nouns and noun-clauses is presumably the older form of the verbal infix, and *ši* a modification of it, which begins to be found in the time of Entemena; see above and p. 132.

TO. 304. Fragment from the rim of an alabaster vase, with remains of two lines of inscription; cf. p. 80.

1. *dam* . . . . . 2. *ud* . . . .

On metal.

TO. 286. (Baghdad.) Hollow gold bead of scaraboid form, inscribed on convex surface; cf. Pls. XXXV, XL, p. 79.

1. *a-an-ni-pad-da* A-anni-padda,
2. *lugal uri^{ki}* king of Ur.

On clay.

TO. 221–225. Five small fragments of unbaked clay tablets; cf. Pl. XL, p. 81. The remains of their inscriptions are as follows :

TO. 221.	1. *me-šu*	2. *me-um.*		
,, 222.	1. *me* (?) . . .	2. *me*	3. *me-ka*	
,, 223.	1.	2. *maḫ* (?)	3. *nam*	
,, 224.	1.	2. *gan*	3. *ab*	4. *na*
,, 225.	1.	2. *nam* (?)		

None of these preserves enough of its text to allow of any conjecture as to its contents, save that they are in all probability fragments of account-tablets or lists, like the archaic tablets of Farah and Tell Loh. They have value only as epigraphical evidence.

Brick-inscription of Shulgi; cf. Pl. XII, p. 14. The inscription is identical with that published in Rawlinson, *Cuneiform Inscriptions of Western Asia*, vol. i. 2, Nr. ii. 1, and in *Cuneiform Texts*, Part xxi, Pl. 10; see Thureau-Dangin, *Die sumerischen und akkadischen Königsinschriften*, 190 (*a*).

U. 26. A small baked clay tablet, discovered at Ur by the expedition of 1922–3, must be included here although not forming part of the inscriptions of al-'Ubaid. But since there is reason to presume that the A-anni-padda therein mentioned is the king of that name, this tablet is of considerable importance as inscriptional evidence for the date of this king, and cannot be omitted from this place. See Pls. XL, XLI.

1. *^{d}nin-azu*	To the god Nin-azu
2. *lu-dug-[ga]*	Lu-dugga
3. *nam-ti*	for the life of
4. *a-an-ni-pad-da-šu*	A-anni-padda
5. *a-mu-na-šu-ru*	has dedicated (this).

1. The second sign of the god's name is which has the value *azu* (Brünnow, *List of Cuneiform Ideographs*, no. 4663), so that the god is presumably identical with *^{d}Nin-a-zu*, as the name is generally written; cf. Deimel, *Schultexte aus Fara*, 12760, 2.

5. On the infixed *-šu-* see above, TO. 287.

II. THE SIGNIFICANCE OF THE INSCRIPTIONS

(a) *Historical.*

To have revealed the First Dynasty of Ur as an historical reality is the cardinal interest of the scanty written material from al-'Ubaid.

The name of A-anni-padda is thrice mentioned (TO. 160, 286, 287), and once again on a tablet from Ur (U. 26). His identification, however, rests solely upon the foundation-tablet, TO. 160, which, by a most fortunate chance, gives the name of his father, Mes-anni-padda, and the style of 'king of Ur' to both father and son. The father is known from the Sumerian king-lists[1] as the first king of the First Dynasty of Ur (the third dynasty 'after the Flood'), in which he is credited with a reign of 80 years. The son is ignored by the lists, but the highly improbable 80 years of Mes-anni-padda's rule is doubtless to be explained as a conflation of the two reigns; the name of A-anni-padda was lost while the number of his regnal years survived, and these were finally added to those of his father.

That contemporary monuments of a king belonging to so early a dynasty should thus have been recovered is of peculiar importance. In the king-lists the First Dynasty of Ur is surrounded by the names of rulers in other cities, who are said to have held the kingship for hundreds, and even thousands, of years each. Ur is an exception, since the span of its reigns, apart from the alleged 80 years of Mes-anni-padda, is quite credible. But the result of this prevalence of figures so obviously fanciful has been to discredit the authority of the list for the early dynasties. Moreover, there was, before these discoveries, the

[1] The most complete version of this document is now to be found in Langdon, *Oxford editions of Cuneiform Texts*, vol. ii, Pls. I–IV, pp. 1–27. This represents the Larsa version, but considerable portions of the text, with variations of no very great importance, have been recovered from Nippur (see Poebel, *Publications of the Babylonian Section of the University Museum of Pennsylvania*, vol. v, nos. 2–5, and Legrain, *ibid.*, vol. xiii, no. 1) and from Kish (see Scheil, *Comptes rendus de l'Académie des Inscriptions et de Belles-Lettres*, 1911, 606 ff., Thureau-Dangin, *La Chronologie des Dynasties de Sumer et d'Accad*, 59 f., and Gadd, *Early Dynasties of Sumer and Akkad*, Pls. 1, 2).

further serious difficulty that, among all the archaic monuments still extant, none bore the name of any one of the kings detailed in the early part of the list. Apart from a later copy of an inscription [1] of Lugal-anna-mundu, king of Adab, the first king to be represented by his own inscriptions was Lugal-zaggisi of Erech, who occupies a position comparatively low down upon the list. The al-'Ubaid tablet has thus taken back the series of contemporary monuments almost to the beginning of the post-diluvian dynasties, and has proved, what was indeed always most probable, that the Sumerian tradition did not begin with mere speculation or myth, but embodied true information, even though it might add faulty details. Names of kings and of their cities and the general order of their rise to power are recorded, no doubt, with substantial accuracy; their years, and the chronological relations between them, are seriously misrepresented, as is manifest not only from the wild figures assigned to individual reigns in the lists themselves, but from considerations of fact, to which the al-'Ubaid inscriptions, among other evidence, give rise. These may be postponed until somewhat later, and it will be sufficient here to say that, only less remarkable than the actual appearance of this dynasty as historical is the discovery that neither upon epigraphical nor upon archaeological grounds can it be of that remote antiquity which its position in the list seems to suggest.

Mes-anni-padda and his son are but little known in later Babylonian tradition, so far as it has survived. The father is commemorated in the king-list, as already mentioned. He appears there as the founder of his dynasty, and of the kingship in Ur, which was the third city to hold the supremacy ' after the Flood ', in succession to Kish and Erech. Mes-anni-padda is said to have reigned 80 years, and to have been succeeded by three more kings, with reigns of moderate length, before the kingdom passed from Ur to Awan. It is now known, however, that one successor has been omitted, and it has already been conjectured that his ' 80 years ' include the reign of his son, A-anni-padda. A late Babylonian tablet [2] in the British Museum, inscribed with a scholar's exercises in writing words and phrases, partly versions of Sumerian legal language, partly quotations from other works, contains the following words, written twice over: ' The temple which Mes-anni-padda built now lies ruined; the enemy hath destroyed it '. Though isolated from its context, and written in Babylonian, this may be a quotation from an original Sumerian lament over the destruction of a city, perhaps Ur itself, but it is, of course, impossible to say from what document it is derived, and to what occasion or what building it refers. At least it shews that the name of this ancient king was known outside the formal record of the king-list. These two, however, seem to be, with the exception of TO. 160, the only extant allusions to him. Even more narrowly has his son escaped oblivion. Until the appearance of the al-'Ubaid inscriptions his name was unknown;

[1] Poebel, *Publications of the Babylonian Section of the University Museum of Pennsylvania*, vol. v, no. 75. See also *Babylonian Expedition of the University of Pennsylvania*, vi, 2, 130.

[2] No. 56488 (82-7-14, 864), published by Meissner in *Zeitschrift für Assyriologie*, vii, 27–9. The passage in question is p. 29, col. iv, 11 ff. Attention has recently been called to this interesting allusion by G. Dossin, *Revue d'Assyriologie*, xxii, 115 ff.

omitted by some chance from the king-list (perhaps owing to the great similarity of his own and his father's names), he is nowhere else specifically mentioned. There is, however, a tradition in which he survives, though his name there appears in so garbled a form that it could not have been recognized had not the authentic name been recovered elsewhere. Three copies [1] of the same text, discovered at Nippur, relate the vicissitudes of a building in that city called the Tummal (or Ibmal). It was evidently founded in the earliest times, since it is said to have been already once destroyed before the time of Gilgamesh, who began rebuilding it and left the task to be completed by his son. After his days the building again suffered ruin, and the third rebuilding was begun by one Annani, and finished by his son Meskem-Nannar. The third of these texts, however, calls the father Nanni, instead of Annani. The clue to the identity of this person is furnished by the name of his son, Meskem-Nannar, who is known to the king-list as the second monarch of the First Dynasty of Ur. But it has already been shewn that another reign is to be inserted in the list between Mes-anni-padda and Meskem-Nannar, namely, that of A-anni-padda. When, therefore, it is related that the father of Meskem-Nannar, who began the third rebuilding of the Tummal, was Annani or Nanni, it is easy to see that these variant forms of the name are both slightly different echoes of the ill-remembered A-anni-(padda). Furthermore, the next repair of the Tummal was the work of Ur-Nammu and Shulgi of the Third Dynasty of Ur, so that the identification of Annani and Meskem-Nannar with the kings of the First Dynasty is also correct in point of time, and may be regarded as highly probable. In this obscure and disguised form alone, then, has A-anni-padda survived in Babylonian tradition outside the al-'Ubaid inscriptions.[2]

Such, from the historical side, is the direct contribution of these few texts, and such are the rest of the facts known about the persons whom they mention. It remains to see what can be gathered from their form, as distinct from their contents, concerning the times in which they were written. Language and epigraphy supply valuable means of comparison with other datable inscriptions, and it is these which must now be examined for evidence concerning the historical position of the First Dynasty of Ur. Of the other tests by which this may be ascertained, the immediate information of the inscriptions has already been set forth; with the archaeological character of the objects accompanying them it is not the purpose of this chapter to deal, unless incidentally.

Since the First Dynasty of Ur is placed so near the beginning of the list of post-diluvian kingdoms, it is to be expected that its inscriptions, of which those from al-'Ubaid are the first known specimens, would be of an extremely archaic character, that they would, in fact, exhibit the Sumerian script at a stage not far removed from its pictographic beginning, such as is seen on

[1] Poebel, *Publications of the Babylonian Section of the University Museum of Pennsylvania*, vol. iv, 141 ff., v, nos. 6 and 7, and Legrain, vol. xiii, no. 48, col. 2.

[2] See *Studia orientalia* (*Commentationes in honorem Knut Tallqvist*), ed. Societas orientalis Fennica, i, 25 f.

the ' hieroglyphic ' stone tablet from Kish.[1] It must, therefore, be a cause of some surprise to find that in fact, though certainly archaic, the form of these inscriptions is not more so than that of many others previously known; that they are, indeed, when critically examined, of a later appearance, not merely than the Kish tablet, but also than certain specimens of writing[2] already well removed from the purely pictographic state. It is now necessary to proceed to this critical examination, and then to seek what historical evidence there may be for the placing of the First Dynasty of Ur in the order of Babylonian chronology as it is objectively known to us, rather than as it is portrayed in the king-list. For the purpose of the former, language and epigraphy must be questioned, as already indicated, and epigraphy will be taken to include all matters of exterior form, shape of tablets, shape of ' wedges ', and arrangement of signs, as well as the form of the signs themselves.

Unfortunately the extent of the texts now under consideration is so restricted that little can be hoped from even the most careful inspection of their language, which in any case is composed almost entirely of dedicatory formulae. Only two slight peculiarities are to be noticed; one is the isolated position in the sentence of the first line of TO. 160, which, even it if be treated as a vocative, is a feature which does not seem to occur elsewhere. But, in view of the succeeding dative *d.Ninḫursag-ra*, it is more likely that the first line was inserted from the desire to set the name of the deity in the most honorific place, at the beginning of the inscription. This feature can be traced throughout the whole course of Babylonian dedications, but in nearly all cases the divine name is brought into the structure of the sentence. Another interesting exception, however, is furnished by the inscription of Utu-khegal,[3] king of Erech, who immediately preceded the Third Dynasty of Ur. In this *d.En-lil* stands at the beginning, in only the loosest construction with the remainder of the text. This peculiarity of TO. 160, then, cannot be cited as indicative of date. The use of the ' postpositions ' or case-endings, and of the verbal infix of direction, are somewhat more significant. The endings *-ra* (TO. 160. 5), *-ka* (TO. 287. 5), and *-šu* (U. 26. 4) appear in their normal significances, and the last occurs also as the verbal infix (TO. 287. 6, and U. 26. 5). In the mere presence of these elements the al-'Ubaid inscriptions differ from those of Ur-Ninâ of Lagash, who makes no use of infixes, and very slight use of the endings, in which respect his inscriptions are peculiar, since these grammatical features are fully developed in the usage of his grandson, Eannatum. It is doubtful, however, whether this singularity of Ur-Ninâ's texts is a true indication of archaism,[4] since no great change in the usage of the language can be supposed to have taken place within the narrow limits of two generations. The infixed

[1] Langdon, *Excavations at Kish*, vol. i, Pl. xxxi.

[2] Such as the Farah tablets, and, even more, the archaic tablets mentioned below, p. 136.

[3] Thureau-Dangin, *Revue d'Assyriologie*, ix, 111 ff. and x, 98 ff. Cf. also the beginning of Lugal-zaggisi's vase inscription.

[4] Though it is shared with the Farah tablets, and with the early inscription of Enkhegal, King of Lagash (Barton, *Publications of the Babylonian Section of the University Museum of Pennsylvania*, vol. ix, no. 1, Pl. lxvi).

-šu- gives occasion for rather more precise observation. Later practice invariably modified this to *-ši-*, which is first to be descried in the inscriptions of Entemena, king of Lagash, and nephew of Eannatum, who writes in one place *ḫe-na-ši-gub*,[1] and in another *ḫe-na-šu-gub*.[2] The older form *-šu-* continues in use down to the time of Urukagina,[3] last king of Lagash, after whom it is no more found. In this, therefore, lies a useful piece of evidence; the al-'Ubaid inscriptions cannot in any case be later than Urukagina, and are likely to be earlier than Entemena.

Comparison of the outward material form of these inscriptions with that of others, which have an approximately fixed place in the history of Babylonian civilization, will provide a rather more copious investigation. It would, of course, be most instructive to compare them with the writing of dynasties placed close to Ur I in the king-list. This, however, is impossible, because, as already observed, Lugal-zaggisi of Erech is the first ruler mentioned in that document of whom contemporary inscriptions are extant, and it is certain, for historical and archaeological reasons, that the First Dynasty of Ur is to be placed well before his time. Lugal-zaggisi is known to have been the contemporary and the conqueror of Urukagina, last of the line of Ur-Ninâ at Lagash. Though there is a regrettable uncertainty about the extent of time which that dynasty covered, yet it is there that comparisons must be sought, since it is the only contact,[4] however indirect, with the king-list, which document itself knows nothing of the line of Ur-Ninâ, and therefore gives no indication of the position that must be assigned to Lagash within its scheme. On the other hand, kings named by the rulers of Lagash as their predecessors or contemporaries are equally absent from the list, with the sole exception of Lugal-zaggisi. Inscriptions of the first five, and of the last, rulers of Lagash are fortunately abundant, and the space between them is partly filled by the ' pre-Sargonic ' tablets.[5] One more step backwards, though again of uncertain length, is rendered possible by the existence of certain inscriptions of Mesilim, a former king who is mentioned both by Eannatum and by Entemena as having arbitrated in a boundary dispute. Of archaic inscriptions in general there is no lack, and it would be possible to institute an almost unlimited examination of this material. But the effect would only be to establish, or to render probable, the earlier or later date of Ur I as compared with that of kings whose place in history is even more problematical than its own. The only direction, then, in which useful results are to be sought is in the early texts of Lagash, with which those of Mesilim may be associated, since these are the only ones which stand in anything like an historical sequence.[6]

[1] See above, p. 127, note on TO. 287, l. 5.
[2] Entemena, Brick B. iv, 5.
[3] *e.g.* Cones B and C. viii, 9.
[4] By means of the synchronism of Urukagina with Lugal-zaggisi, who appears as the Third Dynasty of Erech.
[5] Dated in the reigns of Entemena, Enetarzi, Enlitarzi, Lugal-anda, and Urukagina, kings or governors of Lagash.
[6] The same consideration would exclude, among the Lagash texts themselves, the archaic inscription of Enkhegal (Barton, *Publications of the Babylonian Section of the University Museum of Pennsylvania*, vol. ix, no. 1, Pl. LXVI), since its chronological relation to the time of Ur-Ninâ cannot be determined.

The whole of the inscribed material from al-'Ubaid appears to be homogeneous[1] in time, as, indeed, might be expected from the circumstances of the find. Not merely do the signs engraved on stone exhibit practically the same forms in the various examples, but they have also a very close resemblance to those of the tablet fragments, if the necessary allowance be made for the difference in material. Among the stone inscriptions, that of TO. 160 might be thought to have a somewhat more archaic look than B. M. 114206, but this impression is corrected by comparing the alabaster fragment TO. 159, the script of which has less tendency to unshapeliness, and it is only natural that the hardness of TO. 160 (marble) should have somewhat distorted the signs. As between the stone and the clay, *ka* of B. M. 114206 may be compared with *ka* of TO. 222, *nin* of TO. 159 and 160 with *nin* of U. 26, *da* of TO. 160, 287, and 286 (metal) with *da* of U. 26. Furthermore, the tablet-fragments TO. 221–5 are written in a script indistinguishable from that of U. 26, which dates itself to the reign of A-anni-padda. All the inscriptions, in short, may confidently be ascribed to the First Dynasty of Ur, and to an extent of time which may not exceed some fifty years.

The shape of the tablets from al-'Ubaid is best typified by TO. 221, with which U. 26 may legitimately be classed as contemporary. They agree in displaying rounded corners and slightly convex sides. TO. 224 is from the right top corner, obverse, of a tablet which can still be seen to have had the same features, and TO. 222 shows the strongly incurving contour of the lower part, reverse, of a large and multiple-columned tablet. All have convex backs; U. 26 has a slightly convex face, TO. 224 a flat face. Again, TO. 160 (stone) has practically square corners and only the slightest convexity of the sides,[2] while that of the back is very pronounced. All of these characteristics are found, in various degrees and permutations, both in the Farah tablets and in the Lagash account documents of the time of Lugal-anda and Urukagina. The latter have usually convex faces, the former flat; both have rounded corners, though certain Farah tablets have them, like TO. 160, nearly square.[3] Here, then, the comparison is definite—these tablets are, on the ground of shape, to be placed in the period bounded by the Farah and the Urukagina tablets, perhaps, in view of the flatter faces, somewhat nearer to the former class. TO. 160 has a further peculiarity, being made in the form of a plano-convex brick.[4] The inscription in this case is on the flat side, whereas those of Ur-Ninâ stand upon the convex side[5] of his bricks. But there is a unique 'contract' inscribed on the flat side of a plano-convex brick from Lagash,[6] by the terms of which a garden is acquired by Eannatum himself, and this seems to offer an interesting parallel to TO. 160, despite the difference in the nature of the inscriptions.

The five tablet-fragments from al-'Ubaid are written with a somewhat coarse stilus, which gives little prominence to the 'heads' of the wedges,

[1] Naturally, with the exception of the Shulgi bricks.

[2] The edging-lines in the copy of TO. 160 (Pl. XL) do not give the actual shape.

[3] Compare, *e.g.* Deimel, *Schultexte aus Fara*, Tafel 6 (Va. T. 12574).

[4] See the description, p. 80.

[5] *Découvertes en Chaldée*, Pl. 31. 1.

[6] *Nouvelles fouilles de Tello*, p. 220 f.

which are formed only by the deeper impression of the point. U. 26 is distinctly finer and the wedges are better marked, with the effect that the appearance of the marks on this tablet is not much unlike that of the Urukagina accounts, though the shape of the signs, as will be seen later, is somewhat more archaic. None of these examples have the peculiarity of a double impression of the stilus in making a horizontal mark, which is a feature of the Farah tablets.[1] A somewhat more important characteristic of the al-'Ubaid inscriptions is that they preserve the archaic practice of writing the signs which constitute a word in an arbitrary order. That the final *-da* of the king's name in TO. 286 is written over the rest, as though it were the first sign, is probably due simply to the exiguity of the space at the engraver's disposal, but B. M. 114206 offers several indubitable examples of inversion in the due order of signs. As a criterion of date, this peculiarity is of considerable value. It occurs markedly in the few inscriptions of Mesilim (e. g. *American Journal of Semitic Languages*, vol. xxx, p. 221, line 3, *SAR.Ê* for *Ê.SAR*;[2] p. 222, *NIN.SAG.ḪUR.AN* for *AN.NIN.ḪUR.SAG*; p. 221, *NIG.PA.TE.SI*, contrasted with *PA.NIG.TE.SI*, *Revue d'Assyriologie*, xx. 4^{10}), and is also found in those of Ur-Ninâ[3] with some frequency. With Eannatum it practically disappears, and after him it is confined to a few stereotyped examples, such as *GAL.LU* for *lugal* and *ZU.AB* for *abzu*, which maintained themselves throughout the history of Sumerian writing. B. M. 114206 does not, indeed, bear the name of A-anni-padda, but it has already been shown that there are no grounds for considering it other than contemporary with him, or at least with his dynasty. Herewith, therefore, a definite piece of evidence seems to have been gained; the First Dynasty of Ur is not to be placed after the time of Ur-Ninâ. This agrees well with all that has been ascertained in the previous inquiry.

It remains now only to examine the shape of the signs in the al-'Ubaid inscriptions and to compare them, in their turn, with those of the early monuments of Lagash. There is, in this test, a certain danger of being misled by subjective impressions, but the best criterion is that of greater or less approximation to the primitive picture-writing, and it is of great assistance that a fairly complete series of successive stages of the writing is now available. A necessary precaution, however, is to ensure that like shall be compared with like; inscriptions upon hard material and upon soft (*i.e.* upon stone and clay) ought for this purpose to be distinguished, since the former, being executed by the chisel instead of the stilus, always preserved a more monumental form, and thus a less developed appearance, than the cursive writing upon tablets. In particular the wedge-head, which was a natural outcome of the use of tablet and stilus, was, of course, purely artificial and a conscious imitation when engraved on stone or metal. To consider first, then, the inscriptions upon stone, nothing very definite can be established. It is evident that TO. 160 has much affinity with the script of Ur-Ninâ,

[1] See Deimel, *Liste der archaischen Keilschriftzeichen von Fara*, p. 4.

[2] Compare also the alabaster vase; Banks, *Bismya*, 264.

[3] As also of the (presumably earlier) Enkhegal.

perhaps most of all with the large ' family-relief '.[1] The signs *AN*, *NIN*, *PAD*, *DA*, *Ê*, *MU*, *TUR*, *LUGAL*, and others may all be compared; *ŠEŠ* is found in an almost entirely similar form on the diorite plaque Col. iii. 4 (*Découvertes en Chaldée*, partie épigraphique, xxxvii, no. 10). The number of initial strokes in *GAL* (B. M. 114206) is greater than in the early Lagash inscriptions, but this need not signify much. The *TU* of l. 4 is similar to that of Ur-Ninâ, and in TO. 287 *UR* and *IL* can also be paralleled from Ur-Ninâ with considerable exactness. A somewhat rare sign *GUR* (B. M. 114206. l. 2) appears in a text[2] of Ur-Ninâ in an almost identical form, while it has somewhat changed its form (at least on clay) by the time of Entemena and Urukagina. The resemblances which have been cited are, however, less impressive than they seem at first sight, when it is observed that the writing of Urukagina upon stone[3] is very little different in appearance from that of Ur-Ninâ, while that of his contemporary, Lugal-zaggisi, inscribed on alabaster vases, is of an archaic appearance, due principally, it would seem, to careless cutting. The fact is that, even to the end of Babylonian history, the form of the signs engraved upon hard material changed but slowly in proportion with the much more rapid transformation of the tablet-script, and it is not surprising, therefore, to find little distinction in this respect between the beginning and the end of a dynasty. With the forms of signs used by Mesilim, again, there is little to contrast; the most notable difference resides in his elongated form of *LUGAL*, which distinctly foreshadows the usage of Agade.[4] In short, while the forms of the signs upon the stone-inscriptions of al-'Ubaid clearly belong to the archaic period as known from the monuments of Lagash, there is nothing in particular to assign them to a definite position with respect to the dynasty of Ur-Ninâ, in spite of the one or two slight indications of an earlier character which have been noticed. For the writing on clay tablets there is regrettably little evidence from al-'Ubaid, even if there be included the tablet U. 26, which dates from the time of A-anni-padda. Nevertheless, there is sufficient for purposes of comparison with the series of early Babylonian scripts which can be observed at certain points in their course of development on tablets from other sites. The limestone ' Pictographic Tablet '[5] from Kish must be regarded, for the present, as representing the archetype of all Sumerian writing, having the various other archaic stone-tablets as descendants at a greater or less interval.

[1] *Découvertes en Chaldée*, Pl. 2 *bis*.

[2] *Ibid.*, Pl. 2, no. 1, col. iii. 9.

[3] See the stone tablet of this king published in the Catalogue of the *Collection de Clercq*, tom. II, Pl. 8.

[4] This seems, in fact, a typical form at Kish; cf. the early example on a fragment of mother-of-pearl inlay, Langdon, *Excavations at Kish*, vol. i, Pl. VI, 1.

[5] *Ibid.*, Pl. XXXI, and pp. 99 ff. The signs engraved upon this monument are pure pictures, though the determination of their originals is not in all cases easy. The construction of the text is simple: the Obverse (no. 1 on the Plate) contains the description of three slaves—the first occupying the whole of Col. 1; the second, case 1 of Col. 2; the third, the remaining two cases of Col. 2. Of these three, the first and third are designated *DU*, ' foot ' (that being, doubtless, the defaced sign in Col. 1, case 2), while the second is designated *ŠU*, ' hand '. The Reverse of the tablet is occupied by (1) a detailed, and (2) a general, summary—one ' hand ', two ' feet ', (Col. 3)—making a total of three slaves (Col. 4). With regard to the signs themselves, the picture of a sledge bearing a shrine (Cols. 1 and 4) is of great interest for the question of early connexion between Egypt and Babylonia, since it is of Egyptian form (*cf.* an Old Kingdom example in P. Montet, *Scènes de la vie privée*, Fig. 48); as to its identification, it is doubtless the

With these the present inquiry is not concerned, since it is only writing upon clay which is in question. Before the Lagash account-tablets, the earliest of which belong to the reign of Entemena, and which were for many years the oldest inscribed clay tablets known, must now be placed the tablets of Farah. The relative date of these is still, unfortunately, impossible to ascertain by historical evidence, but their script seems to leave no room for doubt that they are a good deal older than Entemena;[1] that they are older than Ur-Ninâ is highly probable, though not strictly demonstrable. Somewhere between the Farah tablets and the period of the pictographic writing may be placed a group of tablets now in the British Museum (see Plate XLI). Nothing is known as to the provenance of these,[2] and their date can be only a matter of conjecture. It is, however, necessary to regard them, on palaeographical grounds, as older even than the Farah tablets, since the forms of their signs approach still closer to the pictographic stage, as may be seen from the illustrations.[3] With these, at any rate, it is clear that the al-'Ubaid fragments have nothing to do, and the question lies only between the Farah and the Lagash tablets. Of these, the latter are the more closely related; the most striking instance is *lù* (U. 26. 2), but *nam*, *da*, *ti*, and *šú* also point in the same direction, and it is, in fact, difficult to find any specific divergences between the al-'Ubaid signs and those of Lagash in the period from Entemena to Urukagina.

The results of this examination of the internal evidence for the date of the al-'Ubaid inscriptions may now be summarized:

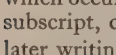
A. *Language*.

(1) Position of divine name.
(2) Use of endings and infixes.
} Not significant.

(3) Use of *-šù-* as infix instead of *-ši-*. Change begins with Entemena and ends with Urukagina.

B. *Epigraphy*.

(1) The al-'Ubaid inscriptions are homogeneous in date.
(2) Shapes of tablets resemble those of Farah, and of the Entemena–Urukagina period at Lagash.

prototype of the sign *RA*. Of the other signs, the last in Col. 2, case 2, seems to represent a man seated under a hut or canopy, and represents MAL+EN, which occurs in Eannatum's 'Stele of the Vultures', subscript, case 5, probably as the equivalent of the later writing MAL+ME. EN (), which has the meaning 'king', that is, one who sits under a canopy. MAL alone is evidently the picture of a house or hut, and the representation of EN on the Kish tablet seems certainly to depict a squatting man (*cf.* again the Egyptian) rather than a 'Wachtturm', as suggested by Deimel, *Liste der arch. Keilschriftzeichen von Fara*, no. 530. The curved *lituus*-like object in Col. 2, case 1, is possibly the original of *NU*, though this, and the object represented, is very doubtful.

[1] This has been contested by Unger, *Zeitschrift für Assyriologie*, xxxiv, 198 ff.; but, if the principle of comparing only like with like (*i.e.* clay with clay) be observed, it is difficult to deny that the Farah tablets are appreciably the older.

[2] They are apparently identical with those obtained by the excavators of Kish, in the season 1925–6, from the site called Jamdat Naṣr, where they were found together with painted pottery. The Museum of the Louvre is also understood to possess some more examples of this class of tablets.

[3] Compare, e.g. *šu*, *en*, *gan*, *sag*, *še*, *ši*, with the corresponding Farah signs.

(3) TO. 160, shaped like a plano-convex brick, recalls the inscribed bricks of Ur-Ninâ, and the contract of Eannatum, written on a brick.
(4) The double horizontal wedges of the Farah tablets are not found.
(5) Signs constituting a word are still written in arbitrary order; this practically disappears before Eannatum.
(6) Shape of signs,
(stone): The signs most resemble those of Ur-Ninâ, but these, in turn, do not vary much in the course of his dynasty.
(clay): The signs are more like those of the Entemena-Urukagina tablets from Lagash than those of the Farah tablets.

Of these tests A. 3. gives (probably) before Entemena.
B. 3. gives Ur-Ninâ and Eannatum.
B. 5. gives before Eannatum.
B. 6. gives (probably) about Ur-Ninâ, but later than the Farah tablets.

So far, then, as the successive tests have given tangible results, the agreement is striking, and the date indicated is somewhat before, but not very long before, the reign of Ur-Ninâ. It will now be shewn that there is certain other evidence which strongly supports the conclusion of these material investigations.

According to the king-list the First Dynasty of Ur was succeeded by that of Awan, to the founder of which, therefore, the destruction of the temple at al-'Ubaid might reasonably be ascribed. Nothing at all, however, is known concerning this dynasty, nor of the nine which succeeded it, including the Second Dynasty of Ur itself. From the formal notices of the list, then, little information is to be gained, and the appearance of a strictly chronological scheme which it offers is, so far as the First Dynasty of Ur itself is concerned, evidently open to the gravest suspicion, not to say wildly impossible, since it actually makes several thousands of years intervene before the reign of Lugal-zaggisi, the contemporary of Urukagina, a conclusion which is quite unacceptable on any consideration. There is no need to labour this point, which is now generally granted. The discovery that, for a variety of reasons, some of which have been set forth above, the First Dynasty of Ur cannot possibly be of so primaeval an antiquity as the list, taken at its face value, assigns to it, is but one more example of this unreliability already established by several other cases. The vitiating factors appear to be of two kinds, the first of matter, the second of form. There is, particularly in the earlier part of the list, a great deal of inflation of figures, which is obvious to the most cursory inspection. But more misleading, because less self-evident, is the formal arrangement by which every dynasty is represented as the successor of the preceding, so that the total duration of the dynasties appears to be the sum of their individual years. As outside evidence has become available, however, it has been proved in certain cases that two or more dynasties, represented as successive, were actually local dominions subsisting at the same

time, with the result that the total period covered by them is seen to have been very much shorter than that indicated by addition of the years assigned to each dynasty. And if this error has been shewn to exist in the somewhat later passages, to such an extent as completely to distort the chronology, much more so is it likely to be found in the earlier parts, where the greater weakness of the tradition is already marked by the mingling of gods and men, and by the irresponsibility of the figures, in respect of which, indeed, the First Dynasty of Ur is an honourable exception. Not to expend more words upon a matter which is largely common ground, it may perhaps be regarded as a principle in dealing with the king-list to consider that the dynasties, the individual kings, and the general order of the accession of both, are for the most part authentic, but that the figures, both items and totals, need severe criticism.

In attempting to gain a juster notion of the real historical position of the First Dynasty of Ur, it will be necessary to turn, as before, to whatsoever external evidence can be found. The condition of the ruins of the first temple at al-'Ubaid proves that it was a violent destruction which put an end to the glories of A-anni-padda's work. Down to, and including, the reign of Sargon of Agade, two destructions of Ur are recorded by the inscriptions of the respective conquerors, Eannatum of Lagash and Sargon himself. The latter is not in question as a possible destroyer of the first temple at al-'Ubaid, since his reign is later than that of Urukagina, and much later, if any reliance at all is to be placed on the list, than the Second Dynasty of Ur itself. On the other hand, the age of Eannatum has been strongly suggested by the foregoing material investigation of the inscriptions, no less than by the archaeological features of the monuments which were found with them, and which are discussed elsewhere.[1] But there is even more weighty evidence of this conquest which must now be adduced. The excavations at Ur of 1922–3 brought to light a fine, though headless, statue[2] of Entemena, the nephew of Eannatum, and those of 1923–4 recovered a portion of a baked-clay cone[3] of Enannatum I, brother and successor of Eannatum, while the continued influence of Lagash at Ur in later times is attested by a foundation-tablet[4] of Gudea. Thus the explicit claim of Eannatum to have conquered Ur is corroborated by the discovery there of monuments belonging to his immediate successors. It remains, therefore, to consider which of the dynasties of Ur was the victim of this attack; the Third being out of the question, the decision must lie between the First and the Second. It has already been observed that the only point of contact between the early rulers of Lagash and external history is in the known synchronism of Urukagina with Lugal-zaggisi of Erech, who represents in the king-list the Third Dynasty of Erech.

[1] See pp. 19, 27.

[2] U. 805: see *Antiquaries' Journal*, vol. iii, p. 331, and Pl. xxxi.

[3] U. 1561 The first column alone remains, and refers to the building of the *ib-gal* for Inanna, and of another edifice called *ê-an-na-kur-kur-ra*. For the former work, cf. CT. xxxvi. 1, Col. 1, 9, 10. It must be added that neither of these monuments, unfortunately, was found in a position which afforded any relevant chronological indications.

[4] U. 3244, found 1924–5 in the Nin-gal temple. To these must now be added inscriptions of Ur-Bau, a predecessor of Gudea, found during the season 1925–6.

This monarch was, in his turn, defeated and captured after a reign of 25 years by Sargon of Agade. The dynasties which precede Lugal-zaggisi in the list have, for demonstrable reasons,[1] to be reduced in actual duration very considerably below the total of their respective years, being in great part contemporary; and since an uncertain, but seemingly not enormous, interval must be allowed between Enannatum II and Urukagina, it has been usual to suppose that Eannatum and his immediate successors lived under the sway of the Dynasty of Maer, a city which, however, he claims to have defeated. Kish and Akshak, two other conquests of Eannatum, were the seats of dynasties which the list enters after that of Maer, and therefore, though Lagash obtains no mention in the document, there seems to be sufficient evidence for bringing in the line of Ur-Ninâ at about this point. If this be done, there could be no doubt which dynasty of Ur it was that fell before Eannatum, since the list makes the *Second* Dynasty of Ur precede that of Maer with the intervention only of a short supremacy of Adab.

A certain difficulty, however, must be felt at this point in the attempt to decide the position of the Ur dynasties by reference to external history. For while the king-list seems to require, as shown above, that Eannatum should be placed after the Second Dynasty of Ur, it cannot be disguised that the discoveries at al-'Ubaid, whether the works of art or the inscriptions be considered, present such unmistakable affinities to those of the early rulers of Lagash, that it is almost inevitable to regard the *First* Dynasty, to which all these objects belong, as that which was brought to an end by the victory of Eannatum. It is, indeed, most unfortunate that the Second Dynasty remains so shadowy; even in the king-list it stood in the only serious gap which now subsists, while there are at present no monuments or archaeological remains which can be assigned to it. The sole possible exception is the 'second building' at al-'Ubaid itself, and the ascription even of this to the Second Dynasty, however probable, is not more than a conjecture. This building proved to be quite barren of accompanying objects and of structural peculiarities which might serve to compare it with other datable examples. Its bricks are flat, not plano-convex, while in size they are somewhat larger than those of Shulgi, but smaller than the Entemena bricks from Lagash.[2] There is not, however, any evidence to display the development of art and writing at the time of the Second Dynasty in such a way that it might be compared with the monuments of Eannatum. If the 'second building' at al-'Ubaid is really the work of the Second Dynasty, there was a definite break (which need not have been very long)[3] between the two. The king-list gives to the Second Dynasty a total of 108 years for four kings, and there need be no hesitation in accepting these figures, since the information of the list concerning the early history of Ur is not only reasonable in itself, but has

[1] Gadd, *Early Dynasties of Sumer and Akkad*, p. 23 ff.; and *cf.* Langdon, *Oxford Editions of Cuneiform Texts*, vol. ii, Preface, p. iii.

[2] See *Découvertes en Chaldée*, i, 419 (0·33 m.×0·24 m.×0·06 m.). At Lagash the bricks of Eannatum are slightly plano-convex; those of Enannatum I and Entemena are already flat.

[3] Though the interval would have to embrace at least the reigns of Enannatum I and Entemena, who left monuments at Ur.

been brilliantly confirmed by the discovery of A-anni-padda's inscriptions. Some time must be allowed between the First and Second Dynasties, and some time again between the end of the Second Dynasty and Urukagina,[1] in order to accommodate the five kingdoms which intervene in the list. These were, it may be supposed, for the most part contemporary, but some allowance must in any case be made for them. If, then, it is granted that some 200 years may have elapsed between the reign of Eannatum and that of Urukagina at Lagash, it will be possible to put the former into that place which the material evidence seems to require, namely as the destroyer of the First Dynasty of Ur. Nor does this allowance seem excessive, for, although the length of the reigns of Ur-Ninâ and his successors is unknown, it is tolerably clear that Eannatum himself and Entemena enjoyed long lives, while in the uncertain interval between Enannatum II and Urukagina several governors, with reigns of uncertain lengths, have to be accommodated. During this period also would occur the rise and fall of the Second Dynasty, already subverted by the time of Lugal-zaggisi. It must be admitted that such an arrangement involves a complete departure from the formal scheme of the king-list, but it should be remembered: (1) that other conclusive instances have already been observed which make it impossible to regard that document as an ordered catalogue of successive hegemonies; and (2) that the archaeological and epigraphical evidence of the al-'Ubaid discoveries agrees at almost every point in indicating for the First Dynasty of Ur a period before, but by no means immensely remote from, that of Eannatum, and that such a weight of testimony cannot, in any scientific estimation, be disregarded or minimized. It is now possible, therefore, to be somewhat more exact as to the date of A-anni-padda and his temple. If Eannatum put an end to the First Dynasty of Ur, its last king, Balulu, had already reigned 36 years, and his predecessors, Elulu and Meskem-Nannar, 25 and 36 years respectively, so that the end of A-anni-padda's reign would fall 97 years before one of the earlier years of Eannatum; roughly, they would be divided by about 120 years, and since Ur-Ninâ was the grandfather of Eannatum, his generation would correspond with that of Elulu at Ur, and A-anni-padda would be some two generations older than Ur-Ninâ, a conclusion which appears to satisfy all the available evidence. The determination of the absolute, as distinct from the comparative, date of his reign must depend upon the view taken of Babylonian chronology as a whole, a very difficult subject, concerning which no discussion would here be in place. But if, as seems most likely, Ur-Ninâ is to be placed somewhere between 3000 and 2900 B.C., the reign of A-anni-padda would not precede by many years the close of the fourth millennium. It is certain, at least, that recent estimates of a date about, or even before, 4000 B.C. are quite beside the mark. A-anni-padda cannot possibly be earlier than 3100 B.C. at the very earliest, and is probably to be dated somewhat later.

[1] Ur had been in the possession of Lugal-zaggisi, who, in his vase-inscription (Col. II, 30–2), celebrates his benefactions to the city. It was shortly afterwards to fall into the hands of Sargon.

(b) *Religious*

In two of the inscriptions translated above appears the name of the goddess Nin-khursag, in another (B. M. 114206) that of Dam-gal-nun (*i. e.* ' great fruitful wife '), which may be regarded as an epithet of the former. The foundation-tablet (TO. 160) states definitely that the temple under which it was laid was dedicated to Nin-khursag, and it is this fact which gives so much significance to the objects found in the ruins at al-'Ubaid. The religious import of the inscriptions resides, then, in this one piece of vital information.

Concerning the individuality of this goddess there is a good deal that is obscure, but enough is known of her attributes to explain many features which appear in the adornment, as well as in the situation, of her temple. The name (which itself may or may not have been read as written [1]) certainly means ' lady of the mountain ', but there is no evidence to show what was understood by such a description, or what ' mountain ' was intended. It is true that, in a Sumerian hymn,[2] this goddess appears as the mother of the mountain-god Amurru; but since she is elsewhere called ' mother of the gods ' [3] (in general), and since, indeed, it is the character of a mother which is all-important in her nature, it is hardly possible to explain the name by this solitary statement, more especially as she is essentially a Sumerian goddess, and not primarily connected with any such foreign district as the ' mountain of Amurru '. In Sumer the chief centres of her cult seem to have been the cities of Kesh and Adab;[4] but in early times she appears likewise in the inscriptions of Lagash, Umma, Susa, Agade, and Ur, and was no doubt honoured, whether by the name of Nin-khursag, or by one of her other epithets,[5] in all the cities of the land. It was this deity who, under her multifarious titles, was known to the Semites as *belit ili*,[6] ' lady of the gods ', because in her character of the goddess associated in varying relations with the dying god (Tammuz, Lillu, or whatever his name), she played a leading part in the mythology and rituals connected with this religious conception, itself the most influential doctrine in Sumerian beliefs. The many names by which she was called were of different origins, some local, some descriptive, some probably appropriate to certain passages or attitudes in her cult,[7] but they do not conceal the substantial identity of the figure underneath, and it is the purpose of this section to consider what illustration can be given to the discoveries at al-'Ubaid by the attributes of the deity to whom the building and its environments were sacred.

It is the character of a mother that is most essential to this goddess. Not

[1] See above, p. 126, n. 1, on TO. 160.

[2] Chiera, *Sumerian Religious Texts*, no. 8, l. 6. For a conjecture as to the ' mountain ' see Poebel, *Historical Texts*, p. 32, and below, p. 145.

[3] Ur-Bau, Statue, Col. 3, l. 8, and Cone of Lu-Utu (*Cuneiform Texts*, i, 50).

[4] See Thureau-Dangin, *Revue d'Assyriologie*, xix, 176; and Langdon, *Oxford Editions of Cuneiform Texts*, vol. i, 48 ff.

[5] ^{d}*Mah*, ^{d}*Nin-mah*, ^{d}*Nin-tu*, *Gašan-ḫursagga*, ^{d}*Aruru*, ^{d}*Mama*, ^{d}*Gula*, &c.

[6] See *Cuneiform Texts*, xxiv, 12 f., 25, 75.

[7] Cf. the names of the goddess Bau in Ebeling, *Keilschrifttexte aus Assur relig. Inhalts*, no. 109; and of Marduk, *ibid.*, no. 142.

only was she the ' mother of the gods ',[1] but of humanity also. In one of the Sumerian myths of creation [2] it is related that Anu and Enlil, Enki and Nin-khursag created the ' black-headed ' human race, and in the poem of Atrakhasis, which, in spite of its fragmentary condition, evidently contains a creation story, the goddess Mami (*i.e.* another name of Nin-khursag) fashions out of clay seven figures each of men and women, which have apparently to be brought to life by the incantation of Ea. It was in consequence of this craftsman-like activity that epithets such as ' metal-worker of the gods ', ' carpenter of mankind ', ' potter-goddess ', were given to her, and elsewhere [3] living creatures are described as ' those whose clay Aruru has plucked off ' from the mass, to fashion them, just as she fashioned Enkidu from clay [4] at the prayer of the people of Erech. Even when the principal part in creation was ascribed to Marduk, it was still confessed that ' Aruru with him fashioned the seed of mankind '.[5] Thus the tradition of the birth of humanity included at all times the activity of a mother-goddess, with whom male gods are associated in different capacities. But creation is only the first act of bringing into being, and the process is carried on by mothers of every generation. In like manner the function of the mother-goddess, Nin-khursag, was not regarded as having ceased with the production of the first creatures, but to be continued in all natural increase. Particularly was she the mother of kings; Eannatum,[6] Hammurabi,[7] Samsu-iluna,[8] and Nebuchadrezzar,[9] are among those who claim to be her children or to have been ' fashioned ' (in the womb) by her, and pray to her that their enemies may be afflicted by a withdrawal of her gracious influence, so that birth may cease in their lands.[10] The diet of rulers in their infancy was ' the holy milk of Nin-khursag ', to which many early inscriptions refer, and the same belief is found towards the end, as at the beginning of Babylonian history. A remarkable document [11] written in the reign of Ashurbanipal takes the form of a dialogue between the god Nabu and the suppliant king, who is reminded of the divine protection, as of his divine nurture, in these words:

> Little wast thou, Ashurbanipal, when I delivered thee to the Queen of Nineveh,
> Weak wast thou, Ashurbanipal, when thou satest upon her knees,
> Four teats were set in thy mouth; two thou didst suck, and two thou didst milk in thy face.

If the last line suggests a many-breasted goddess like the Artemis of Ephesus, she is elsewhere described as a female figure, naked and with her breast exposed, carrying an infant on her left arm;[12] such as she is represented by

[1] See p. 141, n. 3; and Langdon, *Poème sumérien du paradis*, Obv., Col. II, 20 ff., III, 13 ff., where it is related that (divine) children were born from the union of Enki and Nin-khursag.

[2] Poebel, *Historical Texts*, no. 1, Col. I, 13 f.

[3] Ebeling, *op. cit.*, no. 10, Rev. 17.

[4] Gilgamesh Epic, i. 33 ff.

[5] *Cuneiform Texts*, xiii, 36, 9.

[6] Stele of the Vultures, Col. XVIII, 8, 9.

[7] Code of Laws, Col. XLIV, 43.

[8] Bilingual inscription, Col. II, 15, 16.

[9] Rawlinson, *Cuneiform Inscrr. of Western Asia*, i, 55, Col. IV, 16.

[10] Hammurabi, loc. cit., and compare the ' Cruciform Monument ', Col. XII, 26–9 (*Cuneiform Texts*, xxxii. 4), and the curses inscribed upon the boundary-stones.

[11] Craig, *Religious Texts*, i. p. 6, 6 ff., and compare the suckling of Bêl-Marduk by Ishtar; Ebeling, *op. cit.*, no. 143, 33, tr. by Zimmern, *Das babylonische Neujahrsfest*, 2er Beitrag, 14 ff.

[12] *Cuneiform Texts*, xvii, 42, 1–14, tr. by Thompson, *Devils and Evil Spirits of Babylonia*, vol. ii, 146 f.

clay figurines which have been found at Ur as upon other sites. But the most usual symbol of Nin-khursag is the cow,[1] and nowhere has this received more striking illustration than in the copper reliefs of al-'Ubaid. At Lagash the goddess possessed a sacred cattle-farm, which the piety of Eannatum enriched, and it may be presumed that her cattle at Ur were kept in the immediate neighbourhood of her temple. It is, indeed, a scene of life upon this farm which is depicted in the limestone relief of the milkers, where it is not unreasonable to see also, in the filtering, a preparation of the ' holy milk of Nin-khursag ' destined for the nourishment of kings and priests. Everything in that scene has, in fact, a religious significance; the cows with their divinely-given increase, the straining and storing of the ' holy milk ', and the cow-byre with its hooped door-posts and lintel in the form of a moon-crescent, symbolizing the god of Ur, probably the mate of the goddess,[2] upon whose union with her all increase depends. Though there is no direct evidence, all analogy would lead to the belief that at least once a year the goddess set out from al-'Ubaid upon a boat to sail along the stream to Ur where her nuptials with the Moon-god would be celebrated. Such was the universal custom of divine marriages in Babylonia, best described in a hymn to the goddess Ninkarrak of Isin, which tells the order of her procession, and the ceremonies which greeted her upon arrival at Nippur for her marriage to the god Pabilsag.[3] The goddess emerges from her temple, borne upon the shoulders of her priests, with attendant deities on right and left and following behind her. Before her face goes the divine emblem, and in front of the procession runs the courier to announce her coming and to clear the way. Thus attended the goddess embarks upon the canal, from which, in the distance, the ziggurrat of Nippur can already be seen. On arrival there she is received by another procession in which the king is present, and her divine husband, Pabilsag, is brought forth to meet her. While the king does sacrifice, the gods retire together into their bridal chamber while music and the psalms of priests are continued outside. The relative situations of al-'Ubaid and Ur are admirably conformable with this description, which the view from al-'Ubaid, with the broad stream-bed still visible, running thence along beside the ' Nabonidus Gate ' and the ziggurrat of Ur, brings irresistibly to mind. The scene of the divine nuptials in the city itself was possibly a building called Ê-Dilmun, the location of which is doubtful,

[1] See Boissier, *Orientalistische Literaturzeitung*, 1908, Cols. 234 ff. and 551 f., where the undoubted resemblances to the Egyptian goddess Hathor are emphasized.

[2] In Ebeling, *op. cit.*, no. 196, Rev. 10 ff., there is an incantation designed to aid a woman in travail. A myth is there related of a certain cow of surpassing beauty, with which the Moon-god, in the form of a ' strong bull ' (*miru iqdu*, l. 19) mated, and to which he afterwards sent two *lamassu*-gods, or genii, with magic oils to relieve her in her delivery of the calf. Though it is not expressly said that the cow is divine, the story cannot be dissociated from such cow goddesses as Nin-khursag of al-'Ubaid. A striking proof of this connexion is found in the small detached ox-head of copper (B. M. 118015) illustrated in Pl. VII, found by Dr. Hall. This is similar in all respects to those which face out from the copper frieze of cows, except for the notable peculiarity that it bears the moon-crescent in low relief upon its forehead. Whether this shews that the figure from which the head is broken was that of a bull rather than a cow, there is now no means of knowing.

[3] Ebeling, *op. cit.*, nos. 15 and 16; translated by the same author, *Mitteilungen der vorderasiatischen Gesellschaft*, 1918, p. 52 ff.; and by Nikel, *Ein neuer Ninkarrak-Text* (Paderborn, 1918).

though copies of a foundation-cone of Warad-Sin, recording its restoration, have been found.[1] It can hardly have been the shrine at the top of the ziggurrat, in which a godlike marriage is said to have been consummated,[2] since Ê-Dilmun is described as being in the *kisallu*, or court, of the Moon-god's temple. One other question, suggested by the situation of al-'Ubaid in the country outside Ur, may be raised but cannot at present be answered: was this temple the permanent residence of the goddess, or only a place of her occasional resort? It is well known that among the principal religious festivals of the year in all the great Babylonian cities was that which bore the name of *akitu*, the essential feature of which was a procession of the god or goddess, generally by water, to a temple outside the city, at which were enacted certain ceremonies of a nature at present unknown. It is, at least, clear that they were connected in some way with the mythology of the god's affliction at the hand of his enemies, and his subsequent triumph and re-emergence to beneficent activity. At Babylon, where a ritual was performed of which considerable portions have been recovered,[3] the ceremony of Bel-Marduk's *akitu* took place at the beginning of the new year, and an important incident of it was the god's journey by canal to his *akitu*-chapel somewhere in the country outside the city. Similarly at Erech, where there were two such festivals,[4] at spring and autumn, in honour of the god Anu, a procession by boat[5] to the *akitu*-chapel was also included in the rites. In Assyria the *akitu*-chapel built by Sennacherib at Ashur has been discovered,[6] and there is known to have been held an *akitu* festival of the goddesses of Nineveh and Arbela. There are indications of a similar ceremony in honour of a goddess at Erech.[7] Such an observance, then, was marked by the following features: (*a*) it occurred in the spring, and there was sometimes another in the autumn; (*b*) it involved certain acts which were performed in a temple lying in the country outside the city; (*c*) the journey to this temple was commonly made by water; (*d*) it was allowed to goddesses as well as to gods. At Ur an *akitu* festival was celebrated, as at Erech, in spring and autumn, and it is possible that the second of these was in honour of the mother-goddess.[8] If this were so, it can only be said that the temple at al-'Ubaid is not unsuitably situated to be the *akitu*-chapel visited on this occasion; but there is, in fact, no definite evidence upon this point, and the suggestion[9] is to be regarded as no more than a possibility.

[1] U. 641 and other copies, found thrown down a well; duplicates of Clay, *Miscellaneous Inscriptions*, no. 31, Pl. XVIII. For Ê-Dilmun as the place of the goddess's rites at Ur, see Langdon, *Oxford Editions of Cuneiform Texts*, vol. i, Pl. 15, l. 8, and p. 17.

[2] Herodotus, Book I, ch. 181, 182.

[3] Collected by Zimmern, *Zum babylonischen Neujahrsfest* (zweiter Beitrag), 34 ff.; and translated in full by Thureau-Dangin, *Rituels accadiens*, 127 ff.

[4] For the rituals relating to these, see: (for the spring festival) Ebeling, *op. cit.*, no. 132; trans. Zimmern, *op. cit.*, 20 ff.; Thureau-Dangin, op. cit., 99 ff.; Clay, *Babylonian Records in the Library of J. Pierpont Morgan*, iv, no. 7, and p. 17 ff.; Thureau-Dangin, *Rev. d'Assyr.*, xx, 107 ff.: (for the autumn), Thureau-Dangin, *Rit. acc.*, 86 ff.

[5] Recorded in the text published by Clay, quoted in the preceding note.

[6] See *Mitteilungen der deutschen Orient-Gesellschaft*, no. 33 (1907), pp. 24 ff.; also Andrae, *Festungswerke von Assur*, Tafelband, Pls. I and III, for the situation of this building.

[7] Thureau-Dangin, *Rituels accadiens*, 111 ff.

[8] Landsberger, *Der kultische Kalender*, 71; but doubt is expressed by Thureau-Dangin, *op. cit.*, 87 n. 2.

[9] A slight corroboration might be found in the presence near the temple, and between it and the railway, of great piles of unused bricks, first noted by Dr. Hall in 1919; for in a New-Babylonian

So far the character of Nin-khursag has been considered in the aspects which give meaning to certain of the ornaments, as well as to the situation, of her temple. The latter is involved also, however, in considering the other discovery at al-'Ubaid, namely that this place was the centre of extensive cemeteries. Such a fact is evidently more than accidental;[1] if the early inhabitants of Ur chose this as their burying-ground it must have been on account of some peculiar fitness of the site for this purpose. First to be observed is that the cemetery is situated some four miles west-north-west of Ur. To one standing within the sacred area of the Moon-god's temple it would lie directly behind the mass of the ziggurrat, which itself stands in the western corner of the temenos, a position which such buildings almost invariably occupy.[2] Now it is well known that the Babylonians, like the Egyptians,[3] conceived of the realm of the dead as lying in the west, doubtless because it was in that quarter that the sun was observed to set every evening. That the ziggurrats had in some sense, as yet uncertain, the character of a divine tomb seems to emerge no less surely from the tradition that Marduk, during his affliction, was imprisoned ' in the mountain ' (of the dead) than from the direct statement of Strabo that the ziggurrat of Babylon was the ' Tomb of Belos '.[4] But it was not only in situation that al-'Ubaid was adapted to be the cemetery of Ur, but in the nature of the goddess who presided over the place. To assert that her name ' Lady of the Mountain ' meant that Nin-khursag was the goddess of all those who had ' reached their mountain ' (*i. e.*, were dead),[5] and that the deity of al-'Ubaid was therefore primarily a goddess of the dead and of the underworld, could not, indeed, be sustained by any proof. She has, however, more essential connexion with the underworld than a doubtful reference of her name to that region. It has already been observed that Nin-khursag is but one of the names belonging to the ' Great Goddess ' who was worshipped, with little variation of doctrine and rite, in all the cities of Sumer. Mother of gods and creator of men, she was in particular the mother (and often represented also as the wife) of the young god whose annual death was the theme of universal lamentations, and the cause of all fertility leaving the earth in his absence. A Sumerian mythological text,[6] which represents a dialogue between a dying or dead god and his sister, enumerates the names of the divinities who are in affliction at this calamity, and first among them is ' Gashan-[*i. e.* Nin-]khursagga, thy mother '. In the celebrated poem of

account tablet (Dougherty, *Archives from Erech of the time of Nebuchadrezzar and Nabonidus*, no. 141) oil is said to have been received for five brickmakers, *ša ina bab akiti libitti ilabbin*.

[1] The evidence of a population at al-'Ubaid is very slight, and applies only to the ' prehistoric ' period in any case. There seems to be no doubt that, at the time of the First Dynasty of Ur, this site was used only as a cemetery, not a settlement where the dead were buried under house-floors.

[2] This arrangement is found at Nippur, Babylon, Borsippa, Kish, Calah, Ashur, and Kar-Tukulti-Enurta.

[3] Compare, for example, the position of the obelisk in the sun-temple of Ne-user-Re' at Abu Ghurâb, on the west side of the Nile, near Abuṣîr; v. Bissing, *Das Re'-Heiligtum des Königs Ne-woser-Re'*, Blatt 2.

[4] Ch. 738. Note also the brick-inscription of Ashurbanipal, referring to the ziggurrat of Babylon, translated by S. Smith, *Journal of the Royal Asiatic Society*, 1925, 52 f.

[5] A Babylonian expression for 'to die'; cf. Thureau-Dangin, *8me campagne de Sargon*, p. 26, n. 1.

[6] Thureau-Dangin, *Revue d'Assyriologie*, xix, 175 ff.

the ' descent of Ishtar ' it is related that the goddess passed into the underworld in order to seek for Tammuz, and to bring him back to life, which boon she finally obtained from Eresh-kigal,[1] the mistress of the ' land without return '. The mother-goddess, then, is not only she who stood in the closest relation to the dying god, as mother, wife, or sister, but she who goes in search of him in the underworld and finally restores him to shed life again upon all the creatures of earth. This beneficent activity was commemorated in one of the epithets applied to the ' Great Goddess ', who is called ' she that gives life to the dead ',[2] which may be interpreted literally, as well as in the sense of healing those who are sick unto death. That this also was in the power of the ' Great Goddess ' appears from another epithet which she bears, ' the great physician ',[3] in accordance with which a suppliant prays to her ' forasmuch as it is with thee to bring to life and health ',[4] and a medical treatise is said to enshrine the ' great healing art ' of Enurta and the Great Goddess.[5] Conversely, the same goddess had it in her power to afflict with the most direful maladies. Among the curses which Hammurabi denounces against the impious wretch who should presume to change his ordinances and deface his monument is the invocation of the goddess that she may cause to fall upon him ' a heavy sickness, an evil seizure, a grievous injury, that cannot be allayed, whereof the physician knoweth not the cause, which he cannot ease with bandages and which, like the bite of death, cannot be done away '. This distemper, which was probably known as the ' Hand of the Great Goddess ', was marked by a flux of pus and blood, as may be gathered from certain similar curses inscribed upon boundary-stones.[6] A cry of birds in a house was held to portend ' the hand of the Great Goddess ' and sickness upon the house.[7] The goddess who (like Hathor in the Theban necropolis) dwelt in the midst of the dead at al-'Ubaid was at once universal mother, wife of the god with whose annual death all nature loses its vigour, traveller to the underworld to seek the vanished god, and restorer of the sick to health, and of the dead to life. In these beliefs there seems to lie ample reason for the presence of cemeteries at al-'Ubaid—the west is the land of the dead, and there they are buried about the shrine of Nin-khursag, the goddess who was able to rescue them from the underworld and from the death which had overtaken them.

[1] It may be more than a coincidence that the two inscriptions of Lu-Utu, governor of Umma, are dedicated, one to Nin-khursag (see above, p. 141, n. 3), and the other to Eresh-kigal (Clay, *Miscellaneous Inscriptions*, no. 14, and *Cuneiform Texts*, xxxvi, Pl. 3).

[2] In Sumerian *Nin-tin-ug-ga* (e. g. *Cuneiform Texts*, xxiv, 21, K. 4349, D. 6 ; Rawlinson, *Cuneiform Inscriptions of Western Asia*, ii. 59, Rev. 31); in Akkadian *muballiṭat miti*, e. g. *Šurpu*, vii, 81.

[3] *Šurpu*, iv, 86, *azugallatu rabitu*, a pleonastic expression.

[4] King, *Babylonian Magic and Sorcery*, Pl. 12, 75.

[5] Küchler, *Beiträge zur assyr-babyl. Medizin*, p. 62, line 52.

[6] King, *Babylonian Boundary-Stones*, pp. 41. 29 ff., 47. 15 ff.

[7] *Cuneiform Texts*, xxxviii, 31. 13.

PART II

THE CEMETERY

BY

C. L. WOOLLEY AND SIR ARTHUR KEITH

CHAPTER VIII

THE CEMETERY OF AL-'UBAID

By C. L. WOOLLEY

I. THE PREHISTORIC PERIOD

The cemetery lay south-south-east of the temple ruins and at a distance of sixty metres from them. There was here a long low mound, its highest point not more than two metres above the level of the plain from which it rose by scarcely perceptible degrees; over a space measuring some three hundred and fifty metres by two hundred and fifty the surface was littered with broken potsherds, amongst which fragments of the painted prehistoric ware showed in conspicuous numbers, and walking over the site it was possible to pick up worked flints, obsidian blades, and beads of roughly chipped crystal and carnelian; there were very few remains that looked like those of buildings, only here and there a piece of a broken brick which might just as well have come from the temple, but at the top of the mound the slightest scratching of the soil produced burnt ashes and more potsherds: only excavation could prove whether this was a graveyard or a settlement, but it was clear from the first that the excavation would be full of interest.

A beginning was made at the highest point of the mound. Fifteen gangs were set to work in a row, each being given a two-metre square patch, and so dug a trench thirty metres long and two metres wide (increased on the second shift to four metres) divided into fifteen numbered sections which were sunk uniformly so that the depth as well as the position of all objects found could be accurately observed and recorded. As it turned out, the objects were not of such interest in themselves as to call for much comment, and their relation to each other was simply that nearly all were found in homogeneous rubbish belonging to a single period: that being so, it is more important to summarize the results of the trench work than to detail its methods.

There were no graves here, and the remains were all those of a settlement of the very early period. Under some twenty-five centimetres of loose dust and ashes we came upon a stratum about a metre thick composed of hard mud, full of pottery sherds, in which there occurred layers of reed matting thickly plastered with clay mixed with dung or, less often, with a mixture of earth and bitumen; there were also layers of burnt earth, reddish or white in colour, and here and there the carbonized remains of heavier wood; below this came clean water-laid soil into which we dug to a depth of 1·20 m. without finding a single object. There was no doubt that we had to do with primitive hut dwellings erected on a natural ' island ' of river silt rising above what must have been a marshy plain (it must be remembered that though we dug down to the level of the plain as it is to-day, this has risen considerably in the course of centuries), and the interest lay in the character and date of

those dwellings. The clearest information on the first point was given by the north-west end of the trench, where there seems to have been either a hollow or the edge of the little plateau, for here the section shews all the strata running at a sharp slope and peculiarly well defined: near the centre of the trench, where the natural virgin soil rose highest and the surface deposit was but 0·90 m. thick, we found the only remains of brickwork which our excavations produced, a short and irregular length of mud-brick wall (the bricks markedly plano-convex) buried in ashes, which looked like a hearth or bench: loose in the heavy mud filling were found two small and rough pivot-stones, the hinges of doors.

The houses had been built for the most part of reed matting liberally plastered either with clay mixed with dung or with earth mixed with bitumen,[1] the matting being supported by wooden posts set at intervals; the roofs were either flat, of matting and earth resting on wooden beams, like those of brick-built or mud-built houses of the present day, or were barrel-shaped like those of modern reed huts in which fascines of reeds are set upright along the two sides and bent over to meet each other in an arch over which more mats are laid; there can be no certainty here, but the amount of burnt earth lying over burnt wood supports the former alternative, and in that case we must suppose that the wooden uprights supporting the heavy roof were sufficiently stout and sufficiently close together to justify the term ' half-timber construction '. Mud brick was employed, so far as we could see, only for internal details, but the fact that so great a proportion of the deposit consisted of heavy mud can only be explained satisfactorily if we suppose that *terre pisée* was commonly employed; many of the villages in the neighbourhood to-day are built up of mud with no admixture of moulded bricks, and the custom is primitive enough to have been prehistoric; at any rate the lower parts of the huts walls at al-'Ubaid may well have been so constructed, if only to resist damp and to give greater solidity to upper parts composed of half-timber and of matting and daub. The fact that the houses boasted doors with stone hinges, doors therefore which must have been of wood and required reasonably solid frames, implies that these were permanent dwellings of a character far less flimsy than the matting by itself would suggest.

Monuments which go back not indeed to the date of our settlement but to a very early period in Sumerian history illustrate both the types of building suggested above. In figs. 26, 27 are reproduced designs on stone vases showing a house built with wooden uprights with mat-work filling; the roof is flat. That the roof was laid over poles is indeed necessary, but is further proved by a design rudely scratched on a cylinder seal of early date in the Louvre (A. 31)[2] where a row of dots can only be the ends of such roofing poles. For the barrel-roofed house an admirable example is given by a limestone relief, also in the Louvre, representing a reed-built byre (Pl. XXXIX, 1); it is seen from one end, and the arched fascines are very obvious. It is instructive to compare with this ancient drawing the modern reed huts of southern 'Iraq, while for the *terre pisée* construction the same district, or rather the same

[1] On this see note, p. 69.

[2] Delaporte, *Cylindres orientaux du Louvre*, Pl. 64, 1.

villages, will afford an equally striking parallel (Pl. XXXIX, 2–4):[1] there can be no doubt that we have in these a survival from primitive times, nor need we hesitate to use the modern buildings for the reconstruction of those of the prehistoric period.

About the date of the settlement there was no question; the ruins produced enormous quantities of pottery, all in fragments, and quite a large proportion of it was painted ware. The distribution of the pottery was curious, but probably accidental; the south-east end of the trench yielded comparatively few painted sherds but masses of coarser fabrics, amongst which were numerous pieces of black and grey ware with ' combed ' decoration and a few specimens of drab or yellow ware similarly decorated; the north-west end contained a preponderance of painted pottery and very few bits of the combed wares: the best examples of the painted pottery were TO. 254, 516, 519, 523, 525. The evidence for the ' prehistoric ' date of the huts is unexceptional.

How large the settlement was we do not know. Only a little way south of our trench we found contemporary graves and no sign of buildings, and to the north-east the trial work which we did—it was not on a large scale—produced late graves and again no buildings, though of course it is possible that these had existed but had been obliterated by the late grave-diggers: the wide dispersion of painted sherds is not in itself conclusive, because with the erosion of the upper part of the mound the fragments would always be coming to the surface and would be carried by rain water as far as the foot of the slope. The fact that we found huts but no graves in the trench and graves but no huts in the area to the south is not indeed proof but presumptive evidence that the custom familiar to us in later periods of burying the dead under the floors of houses where the living still dwelt did not prevail in prehistoric times; and if that be so the settlement must have been small for the simple reason that there was not free space on the site for a large one. It appears therefore that we have here the remains of a small and humble village set on a little mound not far from the Euphrates as it ran in those days, surrounded by low-lying land partly cultivated and partly swamp. The inhabitants used tools of chipped chert and flint (TO. 21–32, 280–3; Pl. XLVII) and small knives of rock crystal and of imported obsidian (Pl. XIV, 1) with straight or saw edges (Pl. XIII, 4). Some of these last may have been set in or rather on the baked clay sickles that were common all over the site (TO. 435; Pl. XV, 4, 5).[2] The flints were sometimes

[1] I am indebted for the photographs to Professor R. P. Dougherty.

[2] These clay sickles have been a puzzle to archaeologists. Of all materials clay seems the least suitable for the manufacture of a cutting instrument, and yet it is hard to believe that all those which strew a prehistoric site were votive or symbolic models, and their occurrence in house ruins as well as in graveyards is against that view. At Ur we have found one miniature sickle of painted ware which is almost certainly votive, but its very smallness and its decoration are an argument in favour of the normal large examples being of some use. The clay is so hard baked and the edge so keen, though jagged, that they might conceivably have been employed for cutting crops: the fact that they would often break and soon become useless perhaps explains their great numbers. (See also Dr.-Hall's remarks, pp. 8, 48.)

As to the flint and obsidian knives, especially those with saw edges, I would suggest that one of their uses was to be set in the undersides of wooden sleds which are driven round and round over the corn heaped on the threshing-floor to cut

wonderfully well chipped, if we can judge by an undated specimen of an arrowhead (TO. 284, Pl. XLVII ; *cf.* Pl. XIV, 4), and that they were objects of some value is shown by the fact that a genuine flint might be grudged as furniture for a grave and a clay model substituted for it (TO. 38–40, 423, 424 ; Pl. XLVI, 2). Polished celts (TO. 35–7, 378–82 ; Pl. XLVII ; *cf.* Pl. XIII, 2) shew an advance in technique, or maybe but a difference of purpose, and stone bowls (TO. 14 ; Pl. XLVI, 3) further illustrate mastery over the material. Whether copper had yet been introduced it is not possible to say ; certainly no traces of it were found on the hut site or in the prehistoric graves, but the clay model knife (TO. 530 ; Pl. XLVIII) does look as if it were derived from a metal prototype, though it might also have been of wood, and wood seems the more probable original for the curious painted model (TO. 41 ; Pl. XLVI, 2) with its imitation of cord binding. On the other hand it is difficult not to suspect a pattern in copper for the bent clay nails (TO. 43, 434 ; Pls. XLVI, 2 ; XV, 3), which are most common here and in the contemporary ruins at Abu Shahrain (see p. 48).[1] Bone was employed for awls (TO. 400) and perhaps for net-making (TO. 370, 371). The sickles are not the only sign of agriculture : rough querns show that grain was grown and ground ; the extraordinarily worn state of the women's teeth (see Ch. IX) may be due to the primitive methods of grinding, for the coarse-grained stone used for grinders and rubbers would leave plenty of grit in the meal ; if, as the pounders seem to show, crushed barley was also a staple of diet, as it is in many parts to-day, this might be an additional reason for the wearing down of the teeth, for the sodden and bruised grain is spread out in the sun to dry either on a cloth or mat or directly on the ground, and collects in the process a very fair proportion of sand and grit : any one who was obliged to eat Turkish bread in wartime would sympathize with a kindred spirit in prehistoric al-'Ubaid. As one would expect with a village close to river and swamp, fish were also eaten ; fish-bones were found in the debris from the huts, and one example was so small that it could only have been taken in a net : pebbles shaped like a cottage loaf with a groove round the centre may have been net-sinkers.[2] That cows, sheep, and goats were kept we can safely assume, though no direct trace of these was found if we except the dung which went to the making of the hut walls ; the discovery at Ur of a model of a sow in painted pottery proves that the pig must be added to the list of domesticated animals. Spindle-whorls of bitumen (TO. 401, 402) and of baked clay (TO. 283) prove that thread was made, probably from the wool, and heavy clay disks pierced with two holes (TO. 385 ; Pl. XXXVII) may be loom weights. Studs in stone, bitumen, and clay (TO. 386 ; Pl. XXXVII ; *cf.* (1919) 2467 (clay), and 1348 = B.M. No. 118342 (jasper), p. 53 ; Fig. 22, above) may have been

up the straw and to loose the grain for winnowing ; that is a modern practice which must have its origin far back in antiquity.

[1] These clay ' nails ' are another puzzle. Their obvious resemblance to bull's horns has suggested a religious significance, but here again their numbers seem inconsistent with any other than a practical use. I have no idea what that could have been. Dr. Hall suggests (pp. 48–9) that they were used as rubbers or pestles, or were hooks to lift the crop while being reaped by the pottery sickles.

[2] It is tempting to cite in this connexion the copper fish-hook (TO. 384 ; Pl. XLVIII) which was found loose in the soil of the cemetery site, but it more probably belongs to the First Dynasty or later.

worn in the ear or nose—they resemble those from Egypt of the Eighteenth Dynasty period; nails or nail-shaped objects of different sizes but all small, made of obsidian, steatite, and clay (TO. 387–90; Pl. XXXVII; *cf.* Pl. XIII, 6, 7; pp. 51–2) are more difficult to explain, but would seem to have been for personal adornment; if not too long, perhaps they are nose studs. Beads certainly were worn, roughly chipped rings of rock crystal and of carnelian, and sometimes of pink pebble and of shell (see p. 52). A beautifully made little object (TO. 372), a human hand in obsidian with the palm hollowed out like a spoon, might well be an article of the lady's toilet; and if so (and the material makes the date fairly certain), it betrays a marked degree of luxury at this early stage. Two small stone objects, TO. 403 and 404, are probably pieces for a game, but whether they belong to this period or to the later cannot be said.

Four figurines throw a little further light on the period. A model of a 'belum' or native boat, with canoe-like body and curled prow (TO. 532; Pl. XLVIII), is eloquent of the life spent by these early marsh people; a rudely modelled bird (TO. 369; Pl. XLVIII) might be merely decorative or might be the bird of the goddess Nin-khursag which we find represented on the First Dynasty temple. TO. 405 (Pl. XLVIII) is peculiarly interesting, a woman's head modelled and painted in the most primitive style; the profile is more like a bird's or a sheep's than a human being's, and recalls the heads of figures on the earliest cylinder seals, though even those are not so rude; the eye is large and set aslant in the head, the nose and mouth come together in a kind of snout, only the breasts betray the genus and sex of the creature. The hair is pulled back and forms a 'bun' behind the head; round the long neck is a black band which may be meant to represent a wide necklace; bands of colour over the shoulder may be part of the drapery. With this, though not actually belonging to it, is another fragment of a human statuette, TO. 407 (Pl. XLVIII), which gives a figure from the waist to the knee—it is broken at the waist but apparently never had more length of leg than it possesses to-day. The interest of this lies in the bands of paint round the waist and legs and the strip of painted ornament down the front; either this represents clothes, a tight and short skirt (or breeches?) laced together down the front, or it shows tattooing of the body. We may compare with these primitive figurines a very interesting little pottery figure (of which the upper part only is preserved), found by Dr. Hall at Shahrain (B.M. No. 115357).[1] It is unpainted, and wears a cap or turban. It has the same beak-like profile as TO. 405, but probably represents a man.

There is only one thing at all inconsistent with the picture I have drawn of a very simple village community, and that is that there were found scattered over the cemetery area, in the trench, and, especially, in the packing beneath the brick ramp which lay below the altar in front of the temple stairs (see p. 73), numbers of the little slender clay cones, the blunt ends sometimes painted red or black, which we know from Loftus's work at Warka to have been used as tesserae for the mosaic decoration of walls (see p. 49, Figs. 15, 16):

[1] *Proc. Soc. Ant.*, Dec. 1919, p. 33, Fig. 13; *Journ. Eg. Arch.*, IX (1923), Pl. XXXVII, 2.

and such elaborate ornament seems out of place in the humble matting-and-daub huts of these villagers. The mosaic wall at Warka dates from a time very much later than we can assign to the makers of the painted pottery who lived in the primitive settlement—later in fact than that of the A-anni-padda temple and the First Dynasty tombs which ousted theirs, but of course it does not help us to fix the first appearance of such work, for it may represent a tradition many centuries old. On the other hand it is not certain that our cones belong to the settlement period; the few found in the trench work came from the upper levels where any kind of mixture was possible, in the cemetery everything was confused, and their occurrence below the ramp only shows them to be earlier than the First Dynasty temple. Somewhere or other on the mound there must have been at some time a building very different from the fishermen's huts, a palace or a shrine becomingly adorned; but we found no more of it than the loose tesserae of its mosaic, and whether it was contemporary with the settlement or was built at some time in that long period, perhaps hundreds of years long, which separates the settlement from the founding of Nin-khursag's shrine by A-anni-padda, we cannot say.

From the two graves of the period which we found (C. 8 and C. 9; see p. 190) we learn that these people practised inhumation, the body being laid in the grave in a contracted position; and from the fact that there were placed beside it food vessels, personal ornaments, and tools, the simple furnishings that a man needs in this life, we can understand that they believed in a future life wherein such would be still required. What other religious beliefs they may have held we have as yet no means of judging.

The chief monument that these people have left of their civilization is their pottery, and it is indeed no ignoble one. At no subsequent period in Mesopotamian history did the potter's craft reach so high a degree of excellence, and never again was such care lavished on its manufacture and decoration.

The fragments of painted pottery which strewed the site were sufficient in number and variety to illustrate well the range of patterns employed by the decorator (see Pls. XV–XIX), but in this there was nothing very novel, for similar fragments had been collected at Abu Shahrain, Ur, and al-'Ubaid itself and provisional studies of them published by Campbell Thompson, Hall, and Frankfort; but fortunately the excavations of 1923–4 produced a number of vases more or less complete (Pl. XLIX) which enable us to deal with the forms of the pottery as well as with its applied decoration. From the trench (p. 149) we got the painted pots TO. 254, 516, 519, 523, 525; the two graves C. 8 and C. 9 contained TO. 252, 253, and 256, while close to the latter were found TO. 251 and 258. At one place in the cemetery there was, underlying graves of the normal type, a stratum of light rubbish and ashes mixed with fragments of burnt brick; the graves were either above this or were dug down partly into it, and in any case the stratum was older than the graves though not necessarily of the date which its contents might seem to imply, for the rubbish may have been collected and tipped here to fill up a hollow at any time between the painted pottery period and time of the later graves: in any case the stratum was full of fragments of painted pottery which in some cases joined up to

give more or less complete sections of vessels (*cf.* TO. 517). Actually below the stratum we found a group of unpainted pots of types XXIX, XXXIV, LVIII, and, quite separate from these but also well below the burnt ashes, two complete pots, one, TO. 498, of type LXXX, and one painted example of type P. XV. B (*cf.* Pl. LI), namely TO. 521. As I have said, the conditions do not warrant us in regarding all the contents of the stratum as necessarily belonging to the same period, and to assign types XXIX, XXXIV, LVIII, and LXXX to the prehistoric age would be against all the evidence of the tombs and also of the trench across the hut site (p. 149), which yielded nothing at all comparable; but the painted pot TO. 521 certainly belongs to the early period, though being wheel-made it must come very late in it. Very similar to TO. 498 is a small jug (TO. 522) found in, though perhaps not belonging to, grave C. 90 (*q.v.*): C. 64 produced the fine fragment TO. 515 (type P. viii) (Pl. XLIX), which again is probably not part of the tomb furniture proper, and the bowl TO. 524, while loose in the soil of the cemetery were found TO. 257 (P. ix), TO. 518 (P. ix), TO. 519 (P. x), TO. 529, a lid for a vase, TO. 525 (P. v), TO. 533, a bowl with a ring base (P. iv), and other fragments.

II. THE PREHISTORIC POTTERY

The painted pottery which we now recognize as typical of the earliest age in Sumer was first discovered by Mr. Campbell Thompson at Abu Shahrain (Eridu) and Ur;[1] Dr. Hall found it also at al-'Ubaid (see pp. 8 ff., 45 ff., and Pls. XV–XIX),[2] and since then it has been reported from Kish and from certain unexcavated mounds of Mesopotamia. The importance of the discovery was at once obvious; nothing of the sort had ever occurred in the levels representing the Sumerian civilization as known to us by carvings and inscriptions, *i.e.* the period going back to 3000 B.C.; at Eridu the sherds were found in the lower strata close to virgin soil, below anything recognizably Sumerian; at Ur the stray fragments mixed up in the soil, though numerous, could have no connexion with the buildings in which they happened to occur, but had clearly been brought up into the higher levels by the disturbance of lower strata; al-'Ubaid as a whole carried Mesopotamian history back into a period previously unknown, and even so there was no assurance that the painted pottery was in any way contemporary with the early temple. As the first discoverer pointed out, the painted wares must either be pre-Sumerian or date from the very beginning of the Sumerian occupation.

Another point which gave importance to the discovery was the fact that these painted wares invited comparison with the products of other very early civilizations. At Bushire on the Persian Gulf M. Maurice Pézard had discovered exactly similar fragments (see p. 9). At Susa painted pottery characterizes the two primitive levels, and a not dissimilar ware had come from the Musyan mound. In Turkestan the Anau excavations had produced painted pottery which had been compared by several writers to that of Musyān

[1] *Archaeologia*, lxx (1920).
[2] *Proc. Soc. Ant.*, Dec. 1919; *Journal of Egyptian Archaeology*, viii (1922), p. 241 ff.

and Susa; and in North Syria Professor Garstang's work at Sakje-Geuzi, my own at Carchemish, and Baron F. von Oppenheim's at Tell Ḥalaf had alike shown that at a very early period painted wares were in use; and lastly in Asia Minor, especially in the eastern part of it, painted pottery seems to have been at home from the dawn of history down into the first millennium B.C. Since Mr. Campbell Thompson's excavations at Eridu (Shahrain) the field has been yet farther widened, and we have painted wares which challenge comparison with his discoveries from Sāmarrā in Mesopotamia, from Muḥammadabad in eastern Persia, from Chinese Turkestan, and from Manchuria (for references see p. 10, n. 2).

Mr. Campbell Thompson in publishing his own discoveries suggested that there was a province of very early painted pottery ranging from Turkestan to Palestine, thus following up the theory tentatively put forward by the late Professor L. W. King[1] of a connexion between Anau and Susa, a connexion which had received the approval of M. Pottier[2] and Mr. Pumpelly,[3] and was lately endorsed by Professor Langdon.[4] The theory is a tempting one and probably embodies much that is true,[5] but it is only too easy to over-emphasize the value of the evidence which we have as yet to hand, and in his admirable monograph on early pottery Mr. H. Frankfort[6] has demonstrated that the wares of Anau I are, technically speaking, diametrically opposed to those of Susa with which they have been compared, that the connexions of Anau II are rather with Anatolia and North Syria, and that while Anau III does not actually contrast with Elam and Mesopotamia, and the first impression is one of similarity, yet when we consider both more closely this impression vanishes.

Our excavations at al-'Ubaid have contributed new material for judgement which was lacking before. In the first place we have now a better idea not of the positive date of the painted pottery but at least of the relation in which it stands to the earliest dated Sumerian culture: in the second place we have associated with it the unpainted wares in contemporary use: lastly, and most important of all, we have complete vessels and can compare the forms of the Mesopotamian vases with those from other countries and study not merely isolated motives of decoration but also the manner in which those motives were combined together and adapted to particular shapes.

As regards the date, it has already been stated that by the time the later cemetery of al-'Ubaid came into use, *i.e.* at the beginning of the First Dynasty of Ur, the graves of the people who used painted pottery had so far fallen into oblivion or disrespect that they were ruthlessly destroyed to make way for new interments, and this must imply a very considerable lapse of time in a country usually regardful of its dead. At Ur we have now excavated deep below the level representing the First Dynasty, and though walls were found, and occupation-levels, going down five metres below the foundations of the First Dynasty buildings, yet at this depth there was no trace whatever of the

[1] *History of Sumer and Akkad*, p. 351.
[2] *Mém. de la Délégation en Perse*, xiii, p. 61.
[3] *Explorations in Turkestan* (1908), i, p. 73.
[4] *Cambridge Ancient History*, i, p. 362.
[5] *Liverpool Annals of Archaeology*, ix, 1 and 2, pp. 41 seq.
[6] *Mesopotamia, Syria, and Egypt and their earliest interrelations: R. Anthrop. Inst.*, Suppl. Paper No. 6 (1924).

painted pottery: again we have proof of the great antiquity of the wares. On the other hand, the fact that faint traditions of painted decoration applied to pottery did survive into the First Dynasty of Ur, as shown by the pots TO. 521 and 522, speaks for a certain continuity which tends to shorten the gap between what were undoubtedly very different phases of civilization.

To some extent the excavations at Kish appear to fill the gap. There two cemeteries of very early date have been found of which one, ' Cemetery A ', has been published by Mr. Mackay;[1] the other, discovered in 1925–6, has yet to be published. The latter has produced a large quantity of fine painted pottery, but it can be said at once that this is wholly different from what we have found at al-'Ubaid; not only is the ware different in quality but the shapes of the vessels and their decoration show few points of contact; indeed their connexion, especially in view of the predominance of the three-colour scheme of ornament, would seem to be rather with Musyan, or with Anatolia, than with south Babylonian sites. I have no doubt that the pottery is later in date than that of al-'Ubaid; but if, as I do not believe, it developed directly out of that, the interval between them must be considerable; if it is a collateral development the interval might be fairly short.

Cemetery ' A ' is of a very different type again, and certainly later in time, but is linked to the first cemetery by the occurrence in that of a painted example of the jug with a handle in the form of a female figure which is definitely characteristic of the ' A ' graves. That ' A ' is, on the other hand, earlier than the al-'Ubaid First Ur Dynasty cemetery is proved by the contents of the graves, especially the vases, of which some forms are common to the early graves of al-'Ubaid (see below, p. 178), while others, never found at al-'Ubaid, are manifestly earlier; if, as seems probable, the cemetery is to be connected with the building to which belonged the stone tablet with pictographic inscription, the lapse of time which separates it from the First Dynasty of Ur is that which was required for the art of writing to develop from the pictographic to the formal script of A-anni-padda. We should then have the series al-'Ubaid I–Kish I–Kish ' A '–al-'Ubaid II–the First Dynasty of Ur or *c.* 3100 B.C., but we are not much closer than before to any dating of the start of the series.

The Shapes of the Vases.

The main types fall into the following categories, so far as they can be established; but it must be remembered that only a certain number of complete vases have been found, and that many other forms existed which our limited material does not allow us to reconstruct; this is particularly the case with the larger vessels, which are represented only by fragments.

A. Plates L–LI.

Type P. i. A flat open platter or tray, the sides curving up to a simple rim.
Type P. ii. An open plate, the base flat, the sides curved up sharply to the

[1] *Field Museum of Natural History: Anthropology Memoirs*, I, 1 (Chicago, 1925).

vertical and ending in a flat rim. Types i and ii may well pass into each other, as in rim (a) (see Pl. LII). To Type ii might be assigned the flat club-ended rims (c), (d), and (e).

Type P. iii. Plates with carinated rims and flat bases. Of these there is a great variety represented by fragments, cf. rims (f) to (k). The type in its varieties is the commonest of all, and is found in both the painted and the plain wares, though more often in the painted.

Type P. iv. Ring-stand bowls. A bowl, a flattened hemisphere, generally of thin ware, with a simple ring base. Proportions of height to diameter generally about 1 : 3.

Type P. v. Hemispherical bowls. These, almost always of very thin painted ware, vary from the truly hemispherical to a shallower round-bottomed form or in the opposite direction to a deeper and more pointed form resembling a ' breast-cup '; the rim is simple and not differentiated from the wall.

Type P. vi. Spouted bowls or lamps; these, always of thin painted ware, are almost the same as the last except that they tend to be oval rather than round, and that at one end of the oval the rim is depressed and pinched in so as to form a trough-like spout. Generally the base is rounded and the walls form a blunted angle with it and rise almost vertically. TO. 255, Pl. XLIX.

Type P. vii. Carinated bowls with ring-stands. From a base-ring about half as large in diameter as the mouth the walls slope sharply out to a marked belly, from which they are carried up carinated to a simple rim. TO. 254, Pl. XLIX. The type is very common in the painted wares of the thicker sort.

Probably the rims (l), (m) and (n) belong to this type; (o) and (p) possibly come from base-ring bowls and if so represent, with their flat rims, what should be a distinct type, but their restoration is doubtful.

Type P. viii. Lug-eared vases. The body of the vase is formed from two flattened hemispheres meeting in a sharply angular elbow; the mouth is wide, the rim low and generally almost vertical, though some fragments seem to show a curved rim; about half-way up the shoulder there are three small lugs pierced horizontally. TO. 515, Pl. XLIX. The type, moderately common in the painted wares, occurs also on a very big scale in the plain pottery; a rim (q) belongs to this type.

Type P. ix. Vases. The body is formed of two elements—a lower half which is almost hemispherical, though the bottom may be slightly flattened, and an upper half which is a truncated cone with very slightly convex sides; the mouth is wide, the rim pronounced, fairly tall and either straight and somewhat splayed or curved outwards: the sharp angle made by the juncture of the two parts of the body generally comes about one-third of the way up the vase, which thereby acquires a tapering effect (TO. 253, Pl. XLIX), or the upper conoid part may be flatter, giving a squatter shape as in TO. 518, Pl. XLIX.

Type P. x. Round-bottomed pots. This is a development of the last type; the

sides approach more nearly to the vertical and the mouth is much more widely open, the diameter across the rim being little less than that of the belly, so that the pot is almost of the alberello type except for its base. TO. 257.

Type P. xi. Ring-stand pots. The mouth is wide, the rim splayed and fairly high, the angle of the shoulder slight and nearly rounded off, the base-ring pronounced. In some cases (probably, judging from fragments) the foot was solid. Rims (r) to (v) may belong to this type.

Type P. xii. Round-bottomed jars. The body is nearly globular, the mouth small, the rim vertical or splayed: it might be called a bottle type. This persists (as type L) in the First Dynasty of Ur.

Type P. xiii. Flat-based jars. The body is virtually globular with a flat base and a boldly upstanding neck and splayed rim. This is essentially a plain-ware shape, but some of the coarser painted sherds may come from such.

Type P. xiv. Footed jars. The body is squatly piriform descending to a solid foot, the mouth large, and the rim straight, in the type example (which is taken from an incised fragment found by Dr. Hall). It probably has such variants as (w) to (aa).

Type P. xv A, B. Spouted footed jars. Very similar to the last, except that there is the addition of a short spout on the shoulder. The type example (A) is taken from a painted fragment, and the foot is restored conjecturally; a large number of similar spouts in plain ware have been found. Example (B), TO. 521, is probably late in date.

Type P. xvi. Handled cups. Round-bottomed, with the sides sloping in from the rounded shoulder to the base of a splayed rim; a flat ribbon annular handle. Examples in green clay with scored design found by Dr. Hall.

The rims (bb), (cc), obviously belong to large globular pots with fairly wide mouths, but there is no means of saying whether these were round-bottomed or had flat or ring bases.

Spouted types were probably more numerous than we can show; broken fragments with spouts were common in the trench and many more were found about the surface; generally they were short and heavy like that on type xiv, but some were longer in proportion, and there was one example of an open trough spout such as might be derived from a gourd or from a cut shell, and is usual in stone and metal vases in the next period.

Handles are very rare, the normal substitute being the small lug, pierced either horizontally or vertically. In the trench we found one fairly delicate plain annular ribbon handle, possibly from such a vessel as type xvi, and one fragment of rather coarse ware preserving the base of a flat handle worked up from the body clay, which seemed to have been more or less straight and vertical, but its length was unknown.

The Contemporaneity of the different Wares.

The thickness of the walls varies greatly. Large vessels such as store-jars are naturally thick-walled, even the upper parts near the rims being as much

as 0·02 m. in thickness; the walls of type xi are generally somewhat clumsy (perhaps 0·0075 m., even in small examples), of types viii and ix thin at the rims and thickening towards the base, of type vii fairly stout, about 0·006 m., of types ii and iii also moderately thick, averaging 0·009 m., while in types v and vi we find instances of what might justly be called egg-shell pottery, the sides being no thicker than 0·002 m. This difference, which in the Susa wares appears to coincide with a difference in date, implies at al-'Ubaid nothing of the kind. Types v and vi are for containing liquids, which exercise an equal strain on all parts of the vessel. The hemispherical form is the strongest to resist such strain, and as a drinking-bowl is invariably held in the hollow of the hand, not picked up by the rim, the delicacy of the walls is not any serious drawback in use and the risk of breakage is more than compensated for by the lightness and pleasantness of the cup. In the case of a plate, which is lifted by the rim and meat, &c., cut upon it, greater strength is needed, especially as the form is not sufficiently curved to resist a transverse strain; consequently types ii and iii are always comparatively thick, even in the cases where the elaborate character of the decoration shows that the maker had in view artistic merit no less than utility. In types viii and ix the rim, the only part where the thickness of the clay is visible, is generally delicate enough, the base is thickened so as to give strength and balance, and there is a special thickening of the walls at the angle where the two sections of the body join, this being the weakest point: type xi, though the rim may be thinned down, is bound to be somewhat heavy at the base, if only because it is a shape not particularly suited to its material. The differences in the texture of the various types can be most easily explained by the nature and use of the types, and there is no need to look for differences in date, nor is there any justification for so doing in the circumstances in which the vases are found. In the cemetery, where the prehistoric graves have been broken up and the fragments of the painted pots are found mixed indiscriminately in the soil, there is no evidence either for or against the wares being contemporary; but in the long trench which we dug through the hut remains the evidence was conclusive: not only were there found there fragments of both thick and thin wares, but a number of fragments of a single pot of either type might occur, proving that the vessels had been broken up *in situ*, and that, as there was no stratification of the hut remains, they had therefore been in use contemporarily in the huts. It is of course likely that the painted pottery was in vogue for a very long period, and in the course of that period there may have been changes of fashion, perhaps a degradation of technique, so that the early part of it may have been characterized by a greater proportion of the finer wares and its later part by such flaccid forms and slovenly decoration as we have in type xi; but if we are to keep to the material evidence which we possess we must admit the simultaneous use of type xi and of the egg-shell bowls, and must take all the examples of pottery from the trench at least as illustrating a single phase of culture and probably (considering the ephemeral nature of the huts) a brief moment in that phase.

And what is true of the various types of painted pottery is true also of the

plain wares; I propose to deal only with the examples found in the hut remains, whose connexion in time with the decorated vases is undoubted, and the entire series forms a contemporaneous whole. The importance of this fact will be seen when we come to compare the pottery of al-'Ubaid with that of Susa. Mr. Frankfort has argued in the case of the painted pottery of Susa that it was a ware appropriated to tomb offerings (like the white *lekythi* of Athens) and never used domestically—indeed, that it was essentially useless owing to its porosity on the one hand and its brittleness on the other: but he goes so far as to doubt whether at the time of its manufacture there was any pottery at all in household use. Without disputing the influence exercised on the Susa potter by prototypes in leather and other substances, I cannot agree that these exquisite vases represent the first essays in clay of a people uninitiated to that medium; if no plain pottery was found associated with the painted I should search for any explanation—even an oversight on the excavators' part—rather than regard this as an argument to such an improbable conclusion. In the case of al-'Ubaid at any rate it can be safely affirmed that the painted pottery no less than the roughest ware was intended for practical use; not only are its sherds found plentifully in the hut ruins, but we find for instance a painted plate of which the interior has been moulded on a basket-work disk so as to produce a rough ridged surface suitable for pulping boiled grain or some similar domestic industry, and also large spouted pots which were certainly not merely ornamental. The pottery was intended for practical purposes, and, as I have said above, the different purposes for which it was intended serve to explain differences in texture.

Technique.

The Clay. The clay of which the vases are made differs considerably in different specimens: remarkably fine in the best wares, it appears loose and friable in some of the thicker-walled vessels and coarse and ill levigated in the larger store-jars or cooking-pots. Undoubtedly this is in part due to difference of quality in the basic clay, the finer sort being chosen for the better vessels, but in part it is owing to the various substances mixed with the clay as *dégraissants*. Since a very pure clay is difficult to manipulate thanks to its stickiness and is liable to crack owing to contraction in the furnace, some kind of admixture is required to correct these tendencies. Such an admixture may be present naturally in the clay, or it may have to be added artificially; in the latter case the potter has a choice of media suitable to his purpose.

In one piece of very coarse ware I was able to detect the presence of finely chopped straw mixed with the body of the clay. Straw was commonly used in the baked bricks of the historic period, just as it always was and is to-day used in the making of mud bricks, sometimes, as in Egypt, combined with the mud to give it greater cohesion, sometimes only on the surface to prevent the mud sticking to the wooden mould, in which latter case the term *dégraissant* can very aptly be applied to it. We have no grounds for assuming that baked bricks were known at this early period, and cannot therefore say

that the potter, working in coarse clay to make a rough vessel, borrowed the technique of the brick-maker; but if he did not copy he certainly did anticipate the brick-maker's practice.

A much more common medium was sand. That this was river sand is shown by the rounded forms of the minute quartzite pebbles occurring in it, and it is of course possible that it should have been a natural impurity of the clay; but in view of the fact that its occurrence is not invariable, and that it seems rather to coincide with particular forms and uses of vessels, it is more likely to be an artificial addition: moreover, the proportion of sand to true clay tends to increase with a greater thickness in the walls of the pot, and I take this to be a deliberate precaution on the potter's part, as the thicker clay, which would not be so uniformly affected by the heat of the furnace, has a greater tendency to irregular contraction and therefore to flawing.

In some of the finer clays, dark grey or greenish grey in colour, there were small red lumps, irregular in shape and powdery in texture, which seem to be crushed pottery. This is a recognized form of *dégraissant*.

The best wares are remarkably smooth and uniform in texture. The clay is creamy white in tone, but when hard fired turns to a dull green, a change due, as Mr. Frankfort explains, to its containing a high proportion of lime in combination with iron (which is always present in clay), and when overfired it becomes bubbly or fuses altogether. I would suggest that the excess of lime is due to the use of powdered chalk as a *dégraissant*; in the banks of the (modern) Euphrates bed at Naṣirīyyah, close to Ur, there is exposed a stratum of fine white chalk, so that the material was readily available for the potter, and it would certainly have served his purpose in the manufacture of his finest wares.

The Potting. Most of the vessels are hand-turned. Some pieces, especially the large store-jars, are hand-made in the true sense of the word, either worked up with the fingers from a lump of clay to which fresh lumps are added as required, the embryo pot either remaining stationary during the process or simply being shifted round at intervals, or built up from a ribbon of clay worked in a spiral. In the case of the hand-turned pots the lump of clay rests on a board which is turned round by the potter with one hand while he works up the clay with the other; the board may rest on another piece of wood, and may even be pivotted on it so as to revolve more accurately, but it does not swing free on the pivot, if such there be, and moves only when the potter's hand is on it and only at the rate at which his hand moves. The next stage of advance is the *tournette* or slow-moving wheel; this is balanced on a pivot and revolves freely on it, but it is turned only by the potter's hand, and, not being weighted, it quickly loses impetus; and the potter still has only one hand free for the moulding of the clay. The real potter's wheel comes in when the revolution is mechanical and the worker can use both hands to deal with his material; the wheel can be weighted so as to make of it a fly-wheel, which when given a strong turn with the hand will continue to spin for some time without serious loss of velocity, or it can be turned by the potter's foot, or it can be worked by an assistant.

There are a few cases at al-'Ubaid in which the *tournette* has undoubtedly been employed; these are bases of vases of which we have no complete example and cannot with certainty reconstruct the forms (see type xiv), and one or two base-rings, which were made separately and fixed on to the otherwise finished vessel, also show signs of having been turned on a slow wheel. But these are exceptions to the general rule: it is tempting to regard them as dating from the end of the period when improvements in technique were being introduced, but there is nothing in the external evidence to justify the supposition. It is noticeable that in the pot-bases in question the marks of the *tournette* are obvious only at the bottom, and that higher up the walls the appearance of the surface is in favour of hand-turning; and it might possibly be that the initial movement of the potter's hand on the crude lump was a deft and rapid twist which would give all the effect of mechanical turning, whereas when the walls rose higher and expanded to a greater diameter he would turn his board more slowly and carefully, and his fingers would no longer move in one regular spiral but with the interrupted pressure and up-and-down motion which characterizes hand work. But it does not seem to me that we are justified in ruling out on such a supposition the occasional employment of the *tournette* which the evidence assuredly implies; only one must insist that its employment was but occasional and that the vast majority of the vessels are hand-turned.

For the final shaping of the pot a piece of wood or stone might be used to supplement the finger-work, and for some of the rims a wooden templet of a rough sort has been employed to ensure accuracy of form.

Treatment of Surface. In the coarser wares the surface is left as it results from the making of the pot, unless there is added decoration of any of the kinds described below.

In wares of the better class, painted or otherwise, there is an engobage produced by working over the surface with the wet hand; the moisture and the friction combine to bring out the finer particles of the clay and give a smooth matt effect very different sometimes from the body texture. I have not found any examples of slip.[1]

The surface is sometimes burnished with a flat pebble or bone, but I have not found any examples of the elaborate and decorative burnishing which is common in North Syrian pottery, e.g. spiral burnishing, the alternation of horizontal bands with bands of vertical or sloped burnished lines; the utmost attempted is the improvement of the naturally matt surface of the engobage by giving it a semi-lustrous finish.

For decoration three media were employed—relief, incision, and paint. Relief is seldom used and is of the simplest kind, raised bands made in the

[1] By 'slip' is understood a wash applied to the surface of the vessel; it may be made of the same clay as that of the body but more finely levigated and mixed with a greater proportion of water, or it may be of a different clay; in either case it is a foreign matter applied to a finished surface with which it does not amalgamate but forms a film over it, and it will generally flake off leaving the original face intact. An 'engobage' is worked up from the body of the clay, as described above, and in section shows no line of demarcation from the body but develops out of it gradually, nor can it be flaked away independently of it.

turning of the vessel or knobs impressed on the surface clay; the raised bands may be scored diagonally across so as to give the effect of a rope moulding, but that is the extreme to which elaboration goes.

Incised ornament is common (see Pls. XIX–XXI). The normal type consists of short fairly deep cuts, vertical or diagonal, arranged in bands which with the sloped cuts result in a herring-bone pattern; occasionally the whole surface of the pot is so covered, more often there are but one or two narrow bands on the neck or shoulder.[1] In one case the incised marks arranged in close rows are crescent-shaped, made by pressing a curved edge into the wet clay: in another the incisions are criss-crossed. Another type which might more accurately be termed punctured decoration is made by pressing into the clay either a round-ended tool held obliquely so as to make a pear-shaped dent or a square-headed one held straight; the holes are either arranged in a single band or combined to form a rough all-over pattern. One fragment showed remains of decoration of a much more elaborate kind and of a mixed technique: with a sharp cutting instrument bands of rough chevrons were incised in the clay, then a shaped tool was pressed into it so as to give to the base of each triangle a corrugated or floreate line, and of every alternate triangle the ground was gouged out; this is an imitation of the vari-coloured inlay which in the same form but in different material occurs both at al-'Ubaid in the First Dynasty temple and also at Susa, the hollowing out of the ground being intended to give a lodgement to some kind of paste, perhaps black and white in alternate triangles, which with the reddish body clay would give exactly the effect of the inlaid columns (see Pls. IV, XXXIV–V).

Under the general heading of incised wares might be included the combed types. For this form of decoration the potter used either an actual comb or a bundle of three, four, or five twigs fastened together which he drew over the surface of the pot scoring it lightly (2327–8; Pl. XXI). Sometimes the combing makes merely a waved line round the vessel, more often it covers the whole surface; it is particularly common on grey smoked ware and is often applied to the interior of vessels.

Amongst Dr. Hall's surface finds are a few instances of incised decoration which should be mentioned here; they undoubtedly belong to the prehistoric period. No. 2432 (Fig. 36) shows a row of hatched triangles pendent from an incised line, an elaboration not found among the trench examples; No. 2429 (Pl. XX) has lozenges between double bands and the lines forming the lozenges are feathered on one side, a trick borrowed from the painted wares. B.M. 117969 (type XVI; Pl. XX) has two bands of diagonal scoring which overlap, and B.M. 117970 (type XIV; Pl. XX) has crossed scoring between horizontal bands.

FIG. 36. Fragment of incised pottery. 2432 (1919). (½.)

Painted Wares. A few fragments were found in the hut ruins of coarse pottery painted red all over (TO. 534):[2] the pot had apparently been dipped

[1] I have come across one fine example of black ware with deep incisions filled in with white lime, but the fragment did not come from the hut site and its date was not certain; however, it is probable that the technique was employed in the early period.

[2] It would be of no use to illustrate them, as they are quite formless.

(there were no brush-marks) in a bath of thin red ochreous colour which had soaked well into the surface clay. But the vast bulk of the painted wares were of the finer class, and the decoration took the form of a true design worked in dark colour on a light ground which is the body colour of the clay (slip is not used). The paint is smooth but matt, the colour either black or brownish red; the paint is ferruginous and with different heat in the firing the colours will pass into each other, the red ferric oxide becoming black ferrous oxide, but on a very few examples there is a definite three-colour scheme with red and black combined on the whitish or buff ground. Other examples of red paint, combined with black or used alone, are described by Dr. Hall (p. 47). The designs on the painted wares will be discussed later when their connexion with the painted pottery of other regions is considered.

The Firing. It is at once clear that two types of kiln were employed by the al-'Ubaid potter. Many of the rougher vessels were fired in a smother-kiln, and their black or smoky-grey colour is due to the carbonaceous matter introduced into the clay in the process of firing; sherds of such wares heated in a clear fire will resume their natural pink or buff colour, the carbon being burnt out of them.

Other wares were fired in a kiln giving a clear heat. The effect of temperature is very different in different examples; to some extent this may be intentional, some sorts of clay or some vessels intended for certain uses requiring a greater heat in firing than others, but the large number of wasters, of pots fused together, cracked or distorted, shows that the potters had not acquired much skill in the regulating of their furnaces. Such wasters are most numerous in the finer painted wares, the whitish clay of which has, as noticed above, often been turned green by the heat acting on the combination of iron and lime in the body: very probably the kiln was of a type into which the actual flame entered, the pots were stacked with the finer pots towards the centre (where the furnace-hole was) so that they might get the full advantage of the heat, and over-firing was only too often the result.

The Elements of the Colour Decoration. The general effect of the decoration of the painted pottery is very rich, but the elements which compose the often elaborate design are comparatively few and almost always very simple (*cf.* pp. 45–7). The bulk of them are geometric and of these the majority are rectilinear; plain horizontal bands, vertical stripes, diagonal hatching or herring-bone patterns, cross-hatching predominate, and with such are combined hatched or cross-hatched triangles and lozenges, chevrons either simple or reduplicated or banded by vertical hachures, small crosses or V-shaped motives, sometimes arranged over a plain field, sometimes used as fillings of a diaper pattern, and simple dots. The true chevron may degenerate into a wavy line, generally employed in groups of two, three, or four parallel curves; another curvilinear motive, less common, is a line looped in a series of U's which in combination gives a scale-like effect. Small circles with dot centres are used close together to cover a field, and a thickly-outlined circle with a Maltese cross or a cross made up of double lines inside it, sometimes surrounded by little dots, is not rare; for the centre of a bowl we have fairly commonly a

rosette with dot centre, thin radiating lines, and curved ends to the petals; another circular motive is a blob of solid black with a fringe of short lines protruding from it, a motive perhaps based on a flower original. Straight lines are sometimes fringed or tasselled in the same way (as at Musyān), and a combination of two of these with the tassel-strokes interlocking gives the effect of an elementary key pattern. Small V's used in bands between two parallel lines tend, probably through the accident of drawing, to become curvilinear and look rather like a seed pattern. Rows of crescents, a treble running loop (perhaps string motive), and a fringed variant of the looped line or angular wave complete the normal repertory of curvilinear ornament. To horizontal bands there is sometimes attached a ' tie-end ' motive formed of two divergent lines, the lower ends of which may be loose or else carried down to meet a second horizontal band; in either case the motive seems clearly to be derived from a string or straw binding.

Fragments, perhaps of type xiii, have a black rim from which descend concave-sided triangles making a crescent effect round the shoulder; exactly the same scheme occurs in Susa I. A fairly close parallel to Musyān is given by Dr. Hall's fragment 1633 (p. 46; Pl. xvi), but here the eye-like patterns are empty, whereas in the Elamite example they are dot-filled. The lowest part of the trench yielded the only instance of what may be a naturalistic motive, a row of tall uprights like conventionalized cypress-trees, which also occurs in surface finds (*e.g.* 1838; p. 45; Pl. xvi). I certainly see a naturalistic motive in Dr. Hall's fragment 1862 (p. 45; Pl. xvi), representing the head of a goat (?), of which there survives only the back half, with part of the eye, horn, and ear: it is curious that Abu Shahrain should have been so much richer in things of the sort.

As has been said above, the colour is almost always black or brownish black on the natural clay; in a very few instances red paint is used instead of the black, and in two or three cases we find a three-colour scheme. In one of these a deep plum red covers the whole surface except for certain reserved rectangles where there is cross-hatching in black on the natural buff of the clay; in another we have parallel bands of red, buff, and black, red being again the predominating colour.

It is obvious that the bulk at any rate of these motives are too simple to afford in themselves any useful criteria for comparison with foreign wares; they are the first and inevitable elements of geometric ornament, and only by the manner of their combination can the decorative scheme attain any individuality. The three-colour examples quoted above do yield parallels: the first with Kish, Musyān, and Anatolia, the second with Carchemish; in certain cases, as I shall point out later, the monochrome decoration falls into line with the Elamite wares, and in one instance at least, with those of Carchemish; but the general result of an analysis of the motives should rather put us on our guard against the assumption of foreign connexions based upon any partial resemblance.

Connexions with other Sites. To the painted pottery of al-'Ubaid Susa offers the most obvious parallel, most obvious because so often remarked and

discussed by previous writers. In the first place we must distinguish between the different periods at Susa, and in this I should prefer to follow the classification drawn up by Mr. Frankfort rather than that of the Louvre publications, even though no corresponding distinction can be drawn between the al-'Ubaid wares, and although the types found at al-'Ubaid to be contemporary tend, in so far as they have parallels at Susa, to cut across any such classification.

Susa I. Of the vase forms characteristic of the first Susa period, three or four occur also at al-'Ubaid. The bowl (type v) is common to both, but the shape is really too simple to constitute evidence—hemispherical or flattened hemispherical bowls will be made in almost any country and at almost any period. On the other hand, the forms vii and x (the flatter and more sharply angled variant of the type) are so individual that their occurrence on the two sites does seem to point to a connexion, especially when we find that the scheme of decoration agrees fairly well, and that in both cases pierced knob handles are found. The type ix is actually less distinctive in that it is rare in Susa I, common in Susa II, and is besides a moderately widespread type, with or without lugs, in the Eastern Mediterranean basin. The pear-shaped jar (type xiv) is represented in Susa I, but is again a type too widespread to be symptomatic. But against these points of resemblance we have to set points of difference not less important. The shape most characteristic of and most common in Susa I, the tall straight-sided tumbler, is *never* found at al-'Ubaid. The decoration of these tumblers, and also of the bowls (where the *shape* is common to the two sites) is entirely unlike anything on the Mesopotamian pottery; certain elements of design may be common, as indeed could scarcely fail to be the case where these elements are of so simple a nature, but their combination into a system of decoration shuts out all comparison, and the elements most typical of Susa, those in which Mr. Frankfort sees derivatives from leather work and stitch-patterns, never occur at al-'Ubaid. Moreover, the technique is quite different. At Susa in the first period all the vessels are either fashioned on the *tournette* or regularly wheel-made: all the design is applied on a white slip not very well fixed; the clay is soft, porous, and fragile; and the hard green wares characteristic of al-'Ubaid have no parallel whatsoever: lastly there are never found at Susa the shapes most common at al-'Ubaid, namely the flat plates with curved or flat carinated rims (ii and iii) and the bowls pinched to form a spout (vi).

It is evident that the dissimilarities between the wares of the two sites far outweigh their resemblances. Even if in spite of the evidence we were to separate the finer from the coarser wares of al-'Ubaid and compare only the former with Susa I (where only finer wares occur) the results would not be seriously modified; we should still have to recognize a radical difference in the technique of manufacture, in the prevalent forms, and in the scheme of ornament.

Susa II offers no parallel to the finer wares of al-'Ubaid but has something in common with the coarser pottery, notably the shapes ix and xi, and the scheme of decoration on these allied types is fairly similar on the two sites;

spouted vases are common, as at al-'Ubaid, solid knob handles occur, and the ware on its technical side is not unlike the coarser al-'Ubaid fabrics with their matt paint, mealy surface, and softer body clay. But again, against a limited number of resemblances, even if sometimes striking in themselves, we have to set differences no less striking which render impossible any close and direct connexion between the Elamite and the Mesopotamian pottery.

Lastly, taking Musyān, we find together with certain points of possible contact, such as the common presence of a spout, the use of a raised rib or fillet round the shoulder of a vase (a feature recalling rather the pottery of the First Dynasty of Ur), knob handles and some of the simpler elements of design (see above, p. 166), a very great difference in the wares as a whole, not the least obvious of which is the general employment at Musyān of a three-colour system of decoration, whereas at al-'Ubaid only two or three sherds bearing polychrome ornament have been found. Indeed the Musyān pottery with its three-colour ornament, the prevalence of the metope arrangement in design, and the use of the concentric circle, as well as some of the vase-forms, seems to connect far more obviously with Asia Minor than with the East, and with Asia Minor at a relatively late rather than at an early period: I should be tempted to look for parallels to it in the Cappadocian pottery of the Bronze Age, and even in the Syrian pottery of the early Iron Age which comes into that country with the influx of an Anatolian population.

With the North Syrian wares of the really early—chalcolithic—period the al-'Ubaid pottery has very little direct connexion. One fragment with polychrome decoration, bands of red and black with reserved bands showing the white body clay, is identical with an example from Carchemish, and the rosette with outlined petals as a motive for a bowl centre is common to the two sites (and occurs also at Sakje-geuzi and at Tell Ḥalaf), and both of these are fairly distinctive features; but in the North Syrian wares the three-colour scheme predominates, the shapes of the vases are quite different, the most common and typical forms never occurring in South Mesopotamia and vice versa, and the commonest of all motives on the pottery of Carchemish and Tell Ḥalaf, the conventionalized bucranium, is quite unknown to the Mesopotamian potter.

Of the painted pottery from Kish little can be said pending its publication by Mr. Mackay, but, as I have remarked before (p. 157), the connexion with al-'Ubaid is at most indirect; and the Kish wares show more affinities with Musyān on the one hand, and with eastern Anatolia on the other, than they do with the geographically closer sites of southern Mesopotamia. Indeed, such sherds as I have seen collected from the *tells* north of Baghdad (such as Kirkūk) and along the Euphrates valley to the lower reaches of the Khabūr appear to me to point to the fact that the potters of this northern area were throughout a very long period subject to the influence of eastern Asia Minor, where together with a primitive technique—the potter's wheel was certainly introduced here much later than in Mesopotamia—polychrome decoration flourished right down to the end of the second millennium B.C. Kish may present us with an early example of this northern influence; the painted wares

of the more southerly sites, Warka, al-'Ubaid, Ur, and Abu Shahrain, together with those of Susa I and II, belong to a different historical phase and have affinities with those of the north only in a secondary degree.

I have emphasized the differences which distinguish the pottery of al-'Ubaid and the neighbouring sites from that of Susa on the one hand and from those of the northern Mesopotamian and Syrian sites on the other, and that particularly in view of the parallels which have too hastily been drawn from the mere fact of a painted ware with more or less geometrical decoration existing at all of them, and I have tried to show that these differences are too great to admit of a theory that the wares are due to a common civilization contemporary in the various centres. But it would be idle to deny that there are similarities also, and that these are of a nature to imply a certain relation or interdependence. The differences and the relations between areas relatively close to one another such as are Elam, Sumer, and the Mitanni country of the middle Euphrates ought to be established before we attempt to bring into the argument the more isolated and outlying discoveries of Turkestan, Baluchistan or Manchuria, or those of Tripolje and the Thessalian *tells*. In the first place there is the question of dates; we do not know what lapse of time separates Susa I from Susa II, in what chronological relation al-'Ubaid may stand to either of these, whether Kish is really later than al-'Ubaid (as I have assumed), the date of the painted waresof Carchemish and Sakje-geuzi, the relation, if any, of the Tell Ḥalaf wares to the later sculptures of the same site, the history of the pottery of eastern Anatolia, or the character of the northern Mesopotamian *tells*: we may be comparing as contemporary the products of widely different periods or interpreting as proof of different date the distinctions due to local conditions and varying influences in contemporary and related cultures. At present the evidence is not sufficient to establish the facts even for our limited area. From the similarities which seem to link together the products of the various centres and from the no less obvious points which distinguish them, I should conclude that we have to deal with a tradition which, emanating ultimately from a single source, developed in different places and under varying local conditions along divergent lines, sometimes reinforced by a fresh wave of influence from the original centre (where also progress, though of a more consistent sort, was going on), and sometimes swamped by the recrudescence of local fashions which it had temporarily displaced: at present we have only disconnected glimpses of this tradition at work and cannot correlate what we see, but we may perhaps guess at its origin.

It appears to me fairly certain that painted pottery does not originate in the southern Euphrates valley; the foreign connexions are against that, and in the south it makes its appearance (so far as we can tell) fully developed, and early disappears, which it would hardly do if it had been native to the soil. That it was introduced by Semitic settlers from the west and south is also improbable; nothing in the ceramic history of the Syrian Semites would support such a theory, and in the ceramics of southern Mesopotamia the Semitic domination sees the final suppression of painted ornament. The

only objection to connecting the painted wares with the Sumerians is that we have no material evidence to justify us in so doing [1]; the ware is so much earlier than the earliest dated Sumerian objects which we possess and the break between the two is so complete that either we must call the pottery pre-Sumerian (in which case, seeing that it is not Semitic, what is it ?) or we must carry back the date of the entry of the Sumerians into the river valley many centuries, if not millennia, before that of their first historical records. In view of Sumerian traditions this is perhaps not unauthorized; the shadowy age-long dynasties of Kish and Erech may be based on a history long enough for our requirements. The attribution of the painted pottery to the Sumerians is almost necessary to account for its distribution if we accept the east or the north-east as the original Sumerian habitat: the pottery must have come from the northern or eastern highlands, and if the people came from there too the connexion is unavoidable.

I have argued elsewhere [2] the theory that at a very early period a culture using painted pottery extended all along the mountain crescent from the hills of southern Elam round through the Anti-Taurus; the horn of the crescent may have been prolonged into the European Balkans, the arc of it may have widened out eastwards so as to include the Anau tableland, and from it ramifications may have struck so far afield as Muḥammadabad and the foothills of the Pamirs: but primarily there does seem to have been in the Near East a mountain—as opposed to a plain—civilization, whose pottery was painted, whereas that of the plains was monochrome. Of course even the arc in its narrower definition covers too wide an area for a uniform culture to have arisen at once or even perhaps to have flourished contemporaneously throughout its whole extent; there must have been an originating and distributing centre, and each district would have had its products modified by local conditions and by different rates of social development, so that by the time we first get into touch with any one its common tradition will have been largely overlaid by independent growths: but the tradition remains, and the distinction between the mountain and the plain holds good. In Susa we see two stages in the tradition, related, though not derived directly the one from the other, for between the two there comes a gap in time and probably a further modifying influence. In the Anatolian highlands painted pottery survives to a much later date, but is apparently divided into a number of local schools each with its distinctive style. In North Syria it died out, only to be revived many centuries afterwards by a fresh influx of Asia Minor peoples. In southern Sumer it was presumably introduced with the earliest infiltration of Sumerian hill folk into the drying marshes of the river valley; for a time it held its own, thanks to the preponderance of the highly developed

[1] [Since this was written, the discoveries of Professor Langdon at the place called Jamdat Naṣr, sixteen miles from Kish, have furnished the required evidence. Painted pottery was there found in association with very early inscribed tablets of the kind mentioned on p. 136 and illustrated in Plate XLI, 3, 4. These tablets being older than any other writing on clay at present known, the painted pottery which accompanied them may be considered 'prehistoric', like the painted pottery of al-'Ubaid, and the ascription of both to the Sumerians need no longer be in doubt. C. J. G.]

[2] *Liverpool Annals*, ix. 1 and 2, p. 41 sqq.

Sumerian civilization over the more backward Semitic settlers, a preponderance which is attested both by legend and by the course of subsequent history; probably the Semites formed at first the substratum of the population, politically insignificant though perhaps not less numerous, but long before the Third Dynasty of Ur, perhaps even as early as the First Dynasty, they were an important element in the state, and men with Semitic names are found in prominent positions. If in the early days the Semites filled the minor roles of craftsmen, &c., under Sumerian instruction, this might explain some of the differences between the Susan pottery and that of al-'Ubaid—traditional Semitic shapes might be enriched with Sumerian ornament, and some distinctively Sumerian shapes might be dropped as not answering to local conditions; and later, as the Semitic element began to assert itself, and the more easily because at the same time increasing wealth and the use of richer materials tended to degrade the potter's art to one of merely domestic utility—the alien fashion of painted pottery fell out of favour and the plain pottery of the Semitic world usurped the whole field. If in northern Mesopotamia the course of ceramic history is different, it is, I think, because the northern Semites, as opposed to those from whom the population of Sumer was recruited, were in closer and more constant touch with Asia Minor, and their handicrafts, like their sculpture, were more subject to the influence of the Anatolian people.

CHAPTER IX

THE LATER CEMETERY

By C. L. Woolley

I. THE GRAVES AND THEIR CONTENTS

As soon as I judged that the trench across the prehistoric hut area had given us all the results it was likely to yield, the working gangs were drafted off and put to test the ground to the south and to the north-east of the trench; to the north-east, after a good deal of fruitless search, two graves were found of the brick-lined trough type, but their contents were not such as to encourage prolonged digging; to the south, on the other hand, the men hit almost at once on graves as to whose importance there could be no doubt at all, and very soon the whole force was concentrated on this area. The method employed was that of ' turning over '; at the start all earth was carried away to a distance in baskets; then, when a reasonable patch of ground had been cleared down to virgin soil, digging went forward from this, the earth being simply thrown back into the hole already made; it is an untidy system and one generally to be condemned on a building site, but for a cemetery it is efficient and economical. The spot where we began work lay near the crest of the mound on its south-east slope, where, as I have explained elsewhere, the denudation was least, and here the graves were found to lie thick in the soil. Even here many of them had suffered by the denudation of the mound, and still more had been disturbed by man, for the cemetery had clearly been in use for a very long period and the later graves had been dug with a complete disregard of what there might be already in the ground; so it was the exception rather than the rule to find a burial intact, and stray pots and isolated skulls were of common occurrence in the oft-times turned-over earth. We recorded ninety-four graves, of which three or four represent more than one interment, but how many people had really been buried in the patch of ground excavated by us it would be impossible to say—it must have been two or three times the number of the graves. The mound measured roughly three hundred and fifty metres by two hundred and fifty; not all its extent was occupied by the cemetery, but even so our excavated area of some 130 metres by 50 is a very small part of the whole, and the total number of burials must have been correspondingly great. Undoubtedly many graves remain yet to be found, and we might have carried on work for much longer, but the prospects were not particularly encouraging; towards the boundaries of the excavation the graves were fewer and poorer, and trials made on the western slope of the mound found only a thin layer of debris and virgin soil close to the surface; time has destroyed altogether a large proportion of the graves. I had other reasons for closing down the work, but I did feel that we had probably amassed material sufficient to give a very fair idea of the cemetery at its different periods.

With the Prehistoric Period I have already dealt at length, and I am now concerned only with the later burials. The terms of the period within which

they must all fall and their chronological order in that period will be discussed in a separate section, and in another section the contents of the individual tombs will be analysed: here I propose to define the different types of graves found and to describe their general characteristics.

Inhumation was the absolute rule. In the whole cemetery there was not a single case of cremation, nor did any body show any trace of having been partially burned as was alleged to have been the practice in the Farah graveyard. The ashes and burnt matter which occurred here and there came from the ruins of the hut dwellings or from some casual fire and had no connexion at all with the graves as such. I could never detect any signs of the body having been wrapped in reed matting, as was done at Farah and is now reported from Kish also, but this negative evidence is not conclusive: the matting of the hut walls, protected as it was by bitumen or mud plaster, had left traces of itself which could be discerned only with difficulty, it was the impression of the reeds that survived, and the reeds themselves were represented merely by a film of black or grey ash; but the soil of the graves was not at all of the sort to preserve so perishable a substance, and it may well be that the dead had been enveloped in mats of which no vestige remained. Similarly, no cloth was found, yet it is improbable that the bodies were buried naked, and indeed in the case of C. 27 the position of the copper pin which rested on the right shoulder is best explained by supposing that it held together a cloak whose fabric has utterly decayed. C. 63 has the remains of what was probably a copper brooch, while in C. 28 and C. 91 the position of the dagger implies a belt, which would hardly have been worn without clothes. The dead then were dressed and laid in the ground either with or without a matting shroud.

The simplest and most general type of grave was a pit cut down into the ground (there was no means of estimating its original depth), in the flat bottom of which there might be, but was not always, a very shallow and roughly oval depression intended for the body. In this, or on the bottom of the pit if there was no depression, the dead man was laid on his side in a more or less contracted position, the hands in front of the face and a little way from it; in some cases the hands held a bowl of stone, copper, or clay, in others there was found in front of the lips a small clay vase of one of the types LXIII to LXXIII,[1] and this may well have been general, though in the plundered and disturbed state of the cemetery the original position of objects was only too seldom maintained. If the body were that of a man, he might have with him his weapons or tools, if of a woman, beads, a spindle-whorl, eye-paint,[2] or rouge;[3] then the cups and vases, which presumably contained food-stuffs and drink, were put into the grave, some in the shallow depression, some on the ledge between it and the wall of the pit: most of the pots were grouped round the head, but in a well-furnished tomb it would be necessary to extend the line of pious offerings down along the front of the body and then to have a fresh group at the feet. The earth was then heaped back into the pit, and sometimes while this was being done belated gifts might be

[1] e. g., C. 46, 53, 58, 59, 78, 80. [2] C. 85. [3] C. 80.

added to those already buried, and we find such pots in the earth filling well above the floor of the tomb to which they belong, and their presence complicates yet more the difficulties of levels.

The second important type is the larnax burial. The clay coffin was in shape either circular, with a diameter of about one metre, or oval, measuring from 0·90 m. to 1·40 m. in length by some 0·70 m. in width, and about 0·25 m. high; the walls were sometimes ribbed, occasionally decorated with a rough rope moulding, more often plain: sometimes the body was put into the coffin, more often this was inverted over the body which had been placed crouched up on the ground, or, in one case (C. 66), on a flooring of bricks: in the former case the coffin was provided with a clay lid, in the latter nothing of the kind was required. Very few objects were placed inside the coffin—indeed, there was not room in it for many—at most, besides the purely personal belongings, a bowl of copper or stone and a small pot set against the dead man's mouth; all other things were put outside the coffin, between it and the wall of the pit which had been dug to receive it. This accounts for the difficulty we have sometimes experienced in attributing pottery vessels to larnax tombs; when once the walls of the pit had been dug away or denuded and its outlines obliterated, there was very little to show that the proximity of vase and coffin was other than accidental, and only when there were several pots reasonably arranged in order against the side of the larnax could we be confident that they really belonged to it.

The third type of grave, of which only two examples were found, C. 18 and C. 19, quite isolated from the rest of the cemetery, consists of a narrow rectangular trough partly lined with and roofed in by bricks; in these the body lay at full length, with the arms by the sides, resting, in the one instance where the bones were preserved, on its right side.

The fact that extended burial was practised at one time and in one type of grave obliged one to examine more carefully than would otherwise have seemed needful the variety of postures in graves of the first type, for in them we find every degree of flexing, from a body tightly contracted in a crouched position to one whose head, trunk, and thighs formed virtually a straight line and only the knees were bent so as to bring the heels up behind the body—though even then the arms would be bent and the hands in front of the face. But the examination leads to no result, and to me it appears certain that such changes of attitude are due to chance or carelessness, and have no significance for period or practice. Further, no significance attaches to the orientation of bodies. The crouched body is laid upon its side, as is but natural, for it could not be put upon its back, and only the Zulus, I believe, bury their dead sitting, but upon which side it was laid was a matter of indifference; and the head may be towards any point of the compass. In the direction of each particular corpse there was no intention and no meaning. The extended burials in the bricked graves do undoubtedly mark a change, a new race or a new religion; but the pit graves are uniform under their casual variety, and the larnax graves with their crouched bodies and their indifference as to direction follow the same tradition.

The graves all appear to be those of comparatively poor people. Only in one tomb, unfortunately much ruined (C. 52), was there found any gold, and in one, C. 92, there were some small silver beads; there is here nothing of that wealth which we might expect from the princes and great men of the age responsible for a temple so richly adorned as that of Nin-khursag at al-'Ubaid. More curious is it that we found not a single cylinder seal, although such were certainly in use in A-anni-padda's reign, and the few engraved amulets bear neither figures nor writing, though one is remarkable as having on it a true spiral, the earliest appearance of that motive in Mesopotamian art. Had the temple not been discovered, we should have formed from the graves alone a rather low estimate of the civilization of the country under the First Dynasty of Ur: as it is, we can see in the graves a fairly full and a most valuable illustration of the setting in which the common folk of the time passed their lives. Their dress, or perhaps it was only the women's dress, was that which we see in the reliefs of the Third Dynasty, a long shirt above which was a cloak passed over one shoulder and secured by a copper brooch or pin. The women rouged their cheeks,[1] and, like the prehistoric Egyptians, touched up their eyes with a bright green paste:[2] they wore beads, generally but a few on the string, of silver and lapis lazuli, copper, carnelian and shell, copper earrings, and on their fingers rings of white shell; it is easy to imagine that all these were but cheap substitutes for the jewels carried by the rich. Vases and bowls of copper and of stone were in common use, and for the latter a fairly wide range of materials was employed, white limestone and marble, aragonite and basalt, but they were purely utilitarian, and we find on them no real decoration and no inscriptions. Painted pottery had long since passed out of use, and the craft of the potter, faced with competition in stone and metal, was suffering from a decline which becomes more marked as the cemetery age progresses; at the beginning of it the clay vessels have a boldness and clearness of outline and a sense of proportion between parts which is admirable, though we miss the egg-shell walls, the magnificently levigated clays and the intense firing of prehistoric times, and only too often a hastily made and clumsy pot shows that long experience of the potter's wheel had introduced the mechanic spirit which takes little pride in its work. But even so early the craftsman was taking a fatal step and tried to meet his rivals on their own ground by imitating their metal vases to the complete disregard of the genius of his proper material; naturally the clay copy was not as good as the copper and failed to capture the market, and the potter, bankrupt of imagination and without hope or interest in the artistic possibilities of his trade, went steadily down hill: at the end of the period we have, together with something of the good old tradition, much that by its slack contours and heavy proportions, its ill-worked clay, rough turning and slovenly finish prepares us for the soulless monotony of Babylonian ceramics.

Very striking is the absence of cult-objects. From the prehistoric graves come models and figurines which can hardly not have had some religious significance, and the Third Dynasty cemetery of Diqdiqqah near Ur has

[1] v. TO. 440. [2] v. TO. 438.

produced vast numbers of terra-cottas representing gods and their worshippers, animals, model boats, and furniture, some of which may be toys, but most are and all may be of a votive character; but not a single thing of the sort was found in the main cemetery of al-'Ubaid. One amulet in the form of a crescent (TO. 418; Pl. XLVII) is no exception to the rule, for that was an object of personal adornment, not of tomb furniture; the graves contain nothing that illustrates or touches upon the faith of those who are buried in them.

II. THE CHRONOLOGY OF THE GRAVES AND OF THE POTTERY

That the cemetery of al-'Ubaid is of very early date there could from the first be no doubt at all, and the obvious theory was that it belonged to the same period as the temple of Nin-khursag built by A-anni-padda. But this comfortable generalization is defeated by certain very stubborn facts: in the first place, the foundation of the temple represents a single point in time, whereas the use of the cemetery must have covered a considerable period, so that strictly speaking the two cannot be contemporary; and, secondly, the graves show such diversity of type, of level and of contents, that they cannot all be referred to the same time, and if some do belong to the reign of A-anni-padda, others must needs be of a different age. Clearly it is most important, if it be at all possible, not only to fix the limits of time within which the graveyard as a whole must fall, but also to arrange the graves themselves in some kind of chronological sequence within those limits. The archaeological material yielded by the al-'Ubaid cemetery is in any case of the greatest interest as illustrating a phase or phases of Sumerian culture of which little or nothing was known before; for the German excavations at Farah, where early graves were found, have been most inadequately published, and those of Kish now in progress have yet to see the light;[1] but its historical value will be enormously enhanced if we can see it not as a vague entity but as a rational series showing development between fixed points of time.

I. As I have explained above (p. 156), the masses of painted potsherds which first drew my attention to the second mound at al-'Ubaid did come from graves, but not from the graves which we generally found; they belonged to an earlier cemetery which had been destroyed by the people who dug the graves which afforded us the bulk of our material, and of the ninety-four graves excavated by us only two contained painted pottery, and they had escaped by sheer accident the destruction which had overtaken all the rest. I think it but fair to assume that in a land where the memorials of the past were held in so great respect as they were in Mesopotamia men would not have made such callous havoc of the graves of their immediate predecessors; the complete plundering of the cemetery by those who dug the later graves must mean either a change of population or a lapse of time

[1] Mr. Mackay has since published his *Report on the 'A' cemetery at Kish* (*Field Mus. Nat. Hist., Anthrop. Memoirs I*, 1).

such as would obliterate all memory and pious regard; either the painted pottery tombs belong to a non-Sumerian folk who had no claim to the respect of their Sumerian successors, and all the evidence we possess is against this, or they belong to a people not racially distinct but so much older that their bones could be disturbed and dishonoured with impunity.[1] At any rate we can safely say that the graves, with the two exceptions already mentioned, date from long after the time of the ' prehistoric ' painted wares.

II. A grave of perfectly normal type, C. 20, produced a clay vase, TO. 125 (Pl. LIV. 1), of a type which runs through virtually the whole period covered by the cemetery, bearing an incised inscription in Sumerian characters. This alone would justify us in maintaining that the cemetery belongs to the fully developed Sumerian period.

III. Our excavations at Ur, and in particular the work done in the graveyard of Diqdiqqah on the outskirts of the city, have familiarized us with the pottery and other tomb furniture of the Third Dynasty of Ur and of the century or so immediately preceding the founding of that dynasty; and none of the al-'Ubaid graves show in the character of their contents any resemblance to those of Diqdiqqah: whatever the date of our cemetery may be, it comes well before the Third Dynasty of Ur.

IV. The different types of burial found in the cemetery have been described before (p. 172 f.), but nothing has been said about type-dating. There were two graves, C. 18 and C. 19, which were distinguished from all the rest by being bricked round with the large flat but finger-marked bricks which seem to appear first at the end of the period during which the First (Ur) Dynasty temple was standing and are characteristic of what we call Second Dynasty work; the two graves must therefore be relatively late, but how late it is not yet possible to say, for the interments may have taken place when such bricks were in normal use, or they might be much later and the bricks have been plundered from a building ruined long before. Since we have nowhere yet found graves of this type belonging to the Third Dynasty, and the one pottery vase which was all their remaining furniture was of a sort common in the cemetery but not recorded as from Third Dynasty tombs, we can fairly assume that these two graves are not much older and not very much later than the Second Dynasty. They lay quite apart from the rest of the graves excavated and may well be in point of time the last of the whole series.

The first of the series are undoubtedly C. 8 and C. 9, the two graves belonging to the ' prehistoric ' period of painted pottery which had escaped destruction at the hands of those who made the later graves: C. 64 should be early for the same reason, but it had been disturbed and the painted vase found in it is only a fragment, and we cannot be certain that it originally belonged to the grave; it must be remembered that all the soil is full of sherds of decorated pottery, and though this particular half-vase lay in the hollow of the grave on the top of a bowl (itself too only a fragment), that may have

[1] Similarly in the main cemetery where, as has been said, an earlier interment has often been disturbed by a later, this may be taken as an argument for the long period of time covered by the burials.

been accidental. In the case of another grave, C. 90, there is also a little doubt. A painted pot was found here, but it lay rather apart from the other furniture of the grave and might conceivably have belonged to another interment; there was no sign of such, but C. 90 lay very close to the modern surface, and it was quite possible for a grave in its neighbourhood to have disappeared through denudation leaving in position only one item of its contents. The vase (TO. 522) is in any case of a type quite different from the ordinary painted pottery, and judging from its appearance one would be inclined to assign it to a late stage in the painted series. In the absence of definite evidence to the contrary, one may accept the pot as belonging to the grave, and the grave as being early though not very early, i. e. as antedating the main cemetery but not as characteristic of the best ' painted pottery ' period represented by C. 9.

Generally speaking levels afford very little help in fixing relative dates. There is no reason why bodies should always have been laid at the same depth below the surface of the ground, and the ground surface was itself far from level: the fact that the ' prehistoric ' graves have been almost without exception disturbed by the later burials shows that they lay higher in the soil than do the latter, and in the late cemetery it is sometimes evident that the disturbance of a grave is due to an intrusive burial of very much the same type though necessarily of somewhat later date. Any positive measurements of level taken from the modern ground surface downwards or upwards from an imaginary base level to the graves would be simply misleading; only in the few cases where we find actual superposition can depth be taken as evidence of any value even for relative dating. Thus C. 42 lies directly below and must therefore be earlier than C. 28, C. 62 is below and therefore older than C. 53, C. 68 is below and therefore older than C. 67, and C. 88 lay 0·80 m. below the bottom of the larnax burial C. 4 and 0·50 m. below though not directly under C. 79 and C. 81.

V. The most important of these graves, dated relatively by their position in regard to other burials, is C. 88. It was a large grave containing twenty-two clay vases, many of them of distinctive forms, and certain of these reproduce exactly the vessels represented on the milking scene on the inlay frieze from the façade of A-anni-padda's temple, or, if they do not exactly reproduce them, do at least possess features in common: thus No. 9 from the grave is precisely the big store-jar which in the inlay scene the man on the right holds between his knees, on No. 1 (type LXXXI) and No. 10 (type XXVI)[1] we have the same band of rope-moulding in relief as there is on the store-jar, and the small lug handles of the vessel which in the milking scene stands on the ground appear on No. 11 (type XXVII). Here then we have a criterion for positive as against relative dating; a grave which from its position is known to come early in the series of those excavated is shown by the nature of some of its contents to be more or less contemporary with A-anni-padda: another grave, C. 15, contains besides the vase XXVI with the lug another

[1] For the form and decoration compare the Kish handled vases, Mackay, *Report on the 'A' cemetery* (see pp. 157, 176, n.), Pl. X, 20.

which is virtually identical with a jar found against the south-east face of the temple (see p. 103 and Fig. 33), and can therefore be attributed to the same period, while the little clay cups which were found placed as votive offerings against the wall of the temple platform and in the well on its north-west side (p. 76) are of types I–IV, the most common of all in the cemetery. The evidence justifies us in adopting what is after all a very natural conclusion, namely that whatever is the date of the earliest cemetery with the 'prehistoric' painted pottery, the site of it was re-used as a graveyard from the time of the building of the First Dynasty temple of Nin-khursag, probably as a result of that temple being built, and continued in use as long as the temple stood: whether or no there was a break in continuity when the shrine was destroyed, at least new interments were taking place here in the time of the Second Dynasty, when the building had been restored; not long afterwards the graveyard was abandoned, and King Dungi's rebuilding of the temple did not lead to any re-use of the cemetery site.

VI. The evidence already quoted for the early date of C. 88 also proves the relatively late date of the larnax burial which formed as it were the top stratum of three. In several instances (C. 22, 47, and 66) there was evidence not amounting to proof but making it probable that these were late burials, the nature of the evidence being in the case of C. 22 the extreme shallowness of the coffin, which was covered by only ten centimetres of soil, and in the two other cases by the fact that the larnax burial had apparently interfered with an earlier inhumation burial. In one case, that of C. 66, the evidence of late date is quite decisive: the larnax was inverted over the body, as was not infrequently done, but the grave-makers first prepared a floor on which the dead might rest, laying down a row of three large square finger-marked bricks over which the coffin was set: the presence of such bricks in the grave proves that it must fall at least fairly late in the period which we assign to the cemetery. Now under the Third Dynasty of Ur and throughout nearly all the rest of Mesopotamian history the prevalent mode of burial is in a clay larnax or in two large clay pots which, put mouth to mouth, serve the same purpose; plain inhumation, or inhumation in a bundle of matting, such as was practised at Farah, al-'Ubaid, and Kish, drops out of use altogether. When at al-'Ubaid we find the two types in use in the same cemetery, but individual graves which can be proved early are of the inhumation type and some of the larnax burials are late, we can safely generalize and say that the custom which was to prevail universally must have been introduced after that which it thus supplanted, and therefore that our larnax graves, though not necessarily subsequent to all the inhumation burials (for the two customs may for some time at least have been practised concurrently), would at any rate tend to belong to the latter part of the period covered by the cemetery as a whole and can be judged relatively late.

We have now been able to establish that certain graves are early. C. 8, C. 9, and C. 90 are definitely pre-First Dynasty. C. 15 and C. 88 belong to the First Dynasty period. C. 42, 62, and 68 are earlier than some other inhumation burials, but their actual date is unknown.

We have seen that C. 18 and 19 can hardly be earlier than the Second Dynasty of Ur and may be later than that: C. 28, 53, and 67 are later than some other inhumation burials, but their actual date is unknown: the larnax graves (C. 4, 22, 27, 31, 32, 33, 34, 38, 39, 47, 66, 72) are late in relation to the inhumation burials as a whole or come late in the whole series formed by the two types.

Thus far we have got with what may be called external evidence: now we must examine the tombs themselves and see whether their contents will help us to further results. The most numerous objects and the most common, and the only ones for which we have any external criterion, are the clay vessels; it is therefore best to confine our attention to these at the outset and to deal later with objects in stone and metal.

The following pottery types occur in the graves which have been classed as early and not in those which have been classed as late: XIII, XIV, XVIII, XX, XXVI, XXVII, XXXV, XXXVI, XLVI, XLVII, L, LIII, LXXV, LXXVI, LXXXVII. Type L occurs also in the pre-historic hut settlement, and XLVI and L in the 'A' cemetery at Kish.

The following types occur both in the early and in the late graves: II, III, IV, XXI, LX, LXI, LXII, LXXVI, LXXIX, LXXXI, of which LXI occurs at Kish. But of these XXI should properly be put down as early, because the late example classed as XXI (from C. 39) is really a variant and sufficiently so to form a type by itself; and LXXXI, which in the case of C. 4 stood outside the larnax and was a broken example, might possibly belong to a different interment and in that case should be reckoned as an early rather than as an intermediate type. Also to the intermediate types, common to the whole cemetery period, we must add types I and probably V, though they do not happen to be represented in any of the graves we have hitherto been able to qualify as early. All these cup forms merge into each other by imperceptible gradations, so that to assign an individual specimen to one or other of two neighbouring types was often difficult and in the case of broken examples only an approximation was possible: the votive cups found against the temple walls would in their variety cover all the types I–IV, and it would be unsafe to say that type V was excluded; and since these *ex votos* are strictly contemporary with the existence of the temple whose foundation marks the beginning of the main cemetery period, the pottery types which they represent must have come in early, and if they occur in late graves also it is because they had a long vogue.

The following types occur in the graves which have been classed as late and not in those which have been classed as early (V, but see last paragraph): VIII, X, XVII, XXIX, LVIII, LIX, LXIII, LXV, LXVIII, XCVIII.

Clearly these results are up to the present no more than tentative; we are arguing from a very small number of cases, not all of which are certain, and there has already been cause to point out (in the case of types I–V) that the negative evidence is unreliable. Further, it must be borne in mind that the tomb-groups are by no means clearly defined, and that owing to intrusion by a later burial or to the mere proximity in the ground of two graves not necessarily of the same date, pots may have been wrongly assigned, and there-

fore evidence derived from them would be positively misleading. Types classed as early because found in an undoubtedly early grave such as C. 88 may have survived in use throughout the whole cemetery period and yet not be represented in any late grave, and vice versa, and where a type is represented by only one or two examples it is obviously most risky to generalize about it at all. We cannot therefore expect this preliminary classification of types into early, common, and late to be wholly borne out by the analysis of the other tomb-groups; rather we can be gratified if it receives any support at all.

'Early' types of vases are found in the following graves: C. 1, 4 (but on this see above), 7, 10, 12, 14, 17, 28, 35, 37, 41, 56, 60, 62, 64, 74, 77, 80, 83, 92, 94. 'Late' types in the following: C. 6, 10, 18, 20, 21, 23, 36, 44, 53, 56, 59, 67, 68, 69, 70, 76, 79, 80, 82, 84, 89, 90, 91.

In twenty graves we find one or more of the supposedly early types, in twenty-three one or more of the supposedly late: in only two cases, C. 10 and 56, are 'early' and 'late' types found in the same grave; in C. 10 there is type LXXXI, which is dated by the known early tomb C. 88, and LXIII, which also occurs in the larnax tomb C. 72, but is one of the commonest forms and was probably employed throughout the whole period, i.e. it would be more correct to reconcile the apparent contradiction by putting the origin of LXIII early than by carrying down the *floruit* of LXXXI to a late period. C. 56 contains the 'early' type LXXVI and also the 'late' type LXVIII; the example of the latter is so roughly made that one might hesitate to adduce it as evidence (it is again a variant of a very widespread form which I have tried to distinguish between types LXIII and LXIX), but it is quite possible that we have here a late instance of an early form and an early instance of a late form in one grave of the middle period. C. 80 is a mixture of two different graves and the vases apparently opposed occur in distinct groups: the case must therefore be ruled out. These forty-three graves altogether contain a large number of pots representing a very fair range of types, and the fact that there are only two instances, and those not very strong ones, which contradict or modify the conclusions drawn from those groups of graves to which on external grounds an early and a late date were respectively assigned, goes very far to confirm those conclusions. We can now go a step farther.

The group of tombs characterized by vases of early type contains the following types besides those which have served to date them: II, III, IV, V, VI, VII, IX, XII, XVI, XIX, XXII, XXIV, XXX, XXXIII, XXXVII, XXXVIII, XLIV, XLV, LIV, LVI, LVII, LVIII, LIX, LX, LXI, LXII, LXIII, LXVII, LXX, LXXIII, LXXIX, LXXXII, LXXXV, LXXXIX, XC, XCI, of which LXI and LXX occur in the 'A' cemetery at Kish; and the group characterized by vases of late type the following: I, II, III, IV, VI, VII, IX, XV, XXII, XXIII, XXIV, XXXI, XXXII, XXXIII, XXXIV, XLII, XLV, XLIX, L (?), LVIII, LIX, LX, LXI, LXII, LXIV, LXVII, LXVIII, LXIX, LXXIII, LXXIV, LXXVI, LXXVIII, LXXIX, LXXXII, LXXXIII, LXXXIV, LXXXVIII, LXXXIX, XC, XCIII.

There is here a good deal of overlapping, but of the types common to both lists we have already seen reason to suppose that I, II, III, IV, and V were in fashion throughout the whole of the main cemetery period, and now

it would appear that we ought to attribute a fairly long vogue to the kindred types VI and VII. Eliminating the other common types, we find occurring in the early group and not in the late the following: XII, XVI, XIX, XXX, XXXVII, XXXVIII, XLIV, LIV, LVI, LVII, LXVI, LXX, and LXXXV; and, occurring in the late group and not in the early, the following: XV, XXXI, XXXII, XXXIV, XLII, XLIX, LXIV, LXVIII, LXIX, LXXIV, LXXVI, LXXVIII, LXXXIII, LXXXIV, LXXXVIII, and XCIII. It is remarkable that amongst all these there is only one single number which disagrees with the results obtained before: type LXXVI, which had originally been remarked in early connexions (grave C. 15), is now found in the early grave C. 35, but also in C. 56 and C. 80, graves which contain late pottery. These same two graves have before now afforded apparently anomalous results; the case of C. 56 (which is a confused group of two graves, see tomb-description, p. 196; but the late type LXVIII does come in the same connexion as LXXVI and cannot fairly be dissociated from it) has been discussed just above, where it was suggested that this is a transitional grave: C. 80 is another grave of which it is remarked in the field notes that the pottery fell into two groups probably not both belonging to one burial, and the vase LXXVI was found in a group composed of types III, IV, V, and LVII, of which the first three are general and the last not yet fixed, but perhaps on the strength of this association best reckoned as early. If then the only exception afforded by the second stage in the analysis of tomb groups is thus found to be more apparent than real, whereas all the rest of the list is in harmony with the results obtained from the groups better assured by external evidence, then we may accept the findings of the second stage also; combining the two, we shall have the following lists of dated vase-types, those italicized coming from graves externally dated, and the others from graves dated by the contents of the first.

Early types. *XII*, *XIII*, *XIV*, XVI, *XVIII*, XIX, *XXI*, *XXVI*, *XXVII*, XXX, *XXXV*, *XXXVI*, XLIV, *XLVI*, *XLVII*, *L*, *LIII*, LIV, LVI, LVII, LXVI, LXX, *LXXV*, *LXXVI*, *LXXX*, *LXXXI*, LXXXV, *LXXXVII*.

Late types. *VIII*, *X*, XV, *XVII*, *XXIX*, XXXI, XXXII, XXXIV, XLII, XLIX, *LVIII*, *LIX*, *LXIII*, LXIV, *LXV*, *LXVIII*, LXIX, LXXIV, LXXVIII, LXXXIII, LXXXIV, LXXXVIII, XCIII.

Types found both in early and in late graves. I, *II*, *III*, *IV*, *V*, VI, VII, IX, XXII, XXIII, XXIV, XXXIII, XLV, LVIII, LIX, *LX*, *LXI*, *LXII*, LXVII, LXXIII, *LXXIX*, LXXXII, LXXXIX, XC.

We began with what we believed to be the extreme cases, the very earliest and the very latest graves, and the overlapping types were found to be few; in the second analysis, while the first distinctions were well maintained, there was a greater proportion of overlapping types, and the probability is that we were dealing with graves which in some cases at least approached each other more closely in point of time: some of the new types defined as early may have been introduced early in the cemetery period but not at its very beginning, and some of those defined as late may have originated rather towards the middle of that period than at its end. The graves with which we have yet to deal do not contain any of those types of vessels which were originally assigned to the beginning and to the end of the series, and the presumption

is that such graves should belong to the middle of the cemetery period, and in them we should expect to find a considerable overlap of the types listed as early or late on the evidence of the secondary groups and a predominance of those types which have been found indiscriminately in early and late tombs.

C. 13. Types VI and XX, both unfixed.

C. 16. Types II, LVI, LXXXVIII, i. e. one type judged early and one judged late on secondary evidence.

C. 24. Types IV, XXXIV (? broken), LVI. The latter is early, the former late.

C. 29. Types IV, V, XLVIII, LII, LX. None fixed.

C. 50. Types LVI, XCV. The former early, the latter not fixed.

C. 51. Types IV, XXVIII, LVI, LX. Type LVI is early, the rest not fixed.

C. 52. Types II, LX. Neither fixed.

C. 54. Types II, VI, LVI, LX. One early, three not fixed.

C. 55. Types VII, LXXXVII (variant), XC. Type LXXXVII is early, the others not fixed.

C. 57. Types II, IV, XXV, LVIII, LX, LXXXII. Type LVIII is late, the rest not fixed.

C. 58. Type XXXIX. Not fixed.

C. 61. Types IV, V, VI, IX, LVIII, LXI, LXXI, LXXXIV, LXXXIX. Types LVIII and LXXXIV are late, the rest not fixed.

C. 63. Types XXXIII, XXXIV. The latter is late, the former not fixed.

C. 65. II, III, LXVII. None fixed.

C. 75. Type LVIII. Late.

C. 78. Types II, LX, LXXIII. None fixed.

C. 81. Types XLV, LX. Neither fixed.

C. 87. Types II, XXV, XXVIII, LX, LXXVIII, LXXXII. Type LXXVIII is late, the rest not fixed.

C. 93. Types II, XXIV, XLIV, LVIII, LXI. Type XLIV is one judged early on secondary evidence, LVIII is late: the rest are not fixed.

There are here only three cases in which types judged on secondary evidence to be early and late are found in the same grave, and this, which can hardly be a mere coincidence, confirms the classification arrived at hitherto. These three graves, C. 16, C. 24, and C. 93 must be assigned to the middle period where the earlier and the later types would naturally overlap, and to the same middle period it is best to attribute all those graves which contain only types common to both ends of the series or otherwise unknown; to the list of early graves we might add C. 50, 51, 54, 55, and to the list of late graves C. 57, 61, 63, 75, 87: but with the caveat that these are so dated in relation to each other rather than in relation to the cemetery as a whole, i. e. they come somewhat before and somewhat after the middle of the series, not necessarily at its beginning and at its end.

But before any final classification of the graves can be drawn up it is necessary to examine the evidence for their dates afforded by objects other than pottery. Since these objects are not very numerous, certainly not numerous enough to serve in themselves as a basis for classification, it will

be best to start with the results now provisionally obtained and to test them by seeing how far the new material is in agreement with them.

Stone Vases. Of the graves listed as early the following contain stone vases:

C. 1. Types V, VII, XV, XXII, XXIII, XXXVII.
C. 7. Type XVII.
C. 8. Type VIII.
C. 10. Type IX.
C. 77. Type XXIII (two examples).
C. 80. Type VIII.
C. 83. Skeuomorphic vase (boat-shaped), TO. 339.
C. 94. Type XI.
and C. 50, a grave not necessarily very early, type XVIII.

Of the graves listed as belonging to the middle period the following contain stone vases:

C. 11. Type VII.
C. 52. Types VIII, X.
C. 65. Type VIII.
C. 73. Type XXXIV.
C. 81. Type XII and TO. 341, a roughly-made pot apparently cut down from a cylindrical vase (see catalogue).
C. 86. Type XII.
C. 92. Type VIII.

In the graves listed as late there are the following types of stone vases:

C. 22. Type VIII.
C. 23. TO. 104, an unfinished vase so rough that it was not typed.
C. 27. Type XXXIX.
C. 51. Types VIII, XII.
C. 53. Type XIV.
C. 59. Type XII.
C. 66. Types VII, X, XXI.
C. 67. Type VIII.
C. 84. Type VIII.

There are only two types which occur both in early and in late graves. Type VII is found in C. 1, a grave for whose early date there is good evidence (pottery types XXVII and LVI) in C. 11, a quite undated grave containing no pottery at all, and in the larnax grave C. 66, which is *ex hypothesi* late. Type VIII, which is common in the late graves, occurs in two early graves, C. 8 and C. 80, a mixed grave which has presented difficulties before, but in that grave it is associated with the early types of pottery LVII and LXXVI, so that its occurrence here cannot well be considered accidental: at the same time, the grave need not be regarded as one of the earliest. Apart from these two exceptions, the distribution of stone vase types harmonizes remarkably well with the classification of the graves by their pottery; type VII is found in

all periods; type VIII once in the very early grave C. 8 and in C. 80, three times in doubtful graves assigned to the middle period, and four times in late graves; it looks as if it had been introduced fairly early and became more popular as the cemetery period went on: types V, IX, XI, XV, XVII, XXII, XXIII (three examples), and XXXVII appear only in early graves: types X and XII are found both in the middle and in the late graves, the latter twice in each: types XIV, XXI, and XXXIX exclusively in late graves. There is nothing here to modify the classification by pottery types.

The Flint Implements (Pl. XLVI, 2; XLVII) do not really help us, for except in the case of C. 8 and C. 9 their association with the graves was doubtful: probably they all came from the wrecked prehistoric graves; large numbers were found both on the surface and in the soil, and the presence of the few examples which were noted in or near tombs of the main period was in all likelihood accidental. The *Beads* also give no criterion, for we have no external grounds for dating them and they were too rare to provide any comparisons between the graves.

Taking the *Metal Objects*, the daggers found in the early grave C. 28 and in the late C. 91 were of quite different types of which the former certainly looks the more primitive: the bowls do not help us—in the early graves only one example was found not altogether crushed and broken, and all that can be said is that copper objects were more usual in the middle and late than in the early graves; but since the early graves are of First Dynasty date and we know from the temple ruins that under the First Dynasty the metal was in common use and the working of it had reached a high degree of excellence, the comparative rarity of copper in these graves can be no more than accidental.

In describing the graves I stated that whereas in the larnax burials the body is necessarily in a crouching position, in the inhumation burials the degree to which the limbs are flexed varies considerably, the whole body being sometimes crouched up, while in other cases the trunk is straight and the upper leg almost in line with it, or at most brought slightly forward and only the knee joint bent so as to bring the heel up beneath the pelvis. These minor changes of posture might be disregarded as accidental (especially as the bodies are in many cases disturbed and fragmentary, so that our records are not wholly to be trusted) were it not that the existence of the two late brick-lined graves C. 18 and 19 shows that a definitely extended posture was at one time in fashion and that therefore anything approximating to such may have been intentional. But even supposing that the position of the bodies can fairly be taken as evidence, the results are indecisive: of the sixteen cases in which the skeleton seemed to be more or less strongly flexed six were early graves, one, C. 56, of the middle period, and six were late; three were doubtful: of the seven cases in which the body was comparatively extended, though in no case was it really straight, three were late and four doubtful. In so far as this tends to connect the extended attitude with the late period to which the brick-lined graves belong it agrees with our general results, but as against this we have the strongly flexed posture of the bodies in the larnax burials, which are just as certainly late.

Summing up the whole argument we can say that the evidence of the pottery is remarkably consistent, that of the stone vases agrees with it, and it is not weakened by evidence of any other sort: consequently it may be accepted as giving a good working basis for a chronological sequence of the graves. These can be grouped as follows:

Prehistoric. C. 8, 9, 90.

I. Early.

(A) First Dynasty. C. 15, 88.

(B) Early. C. 1, 7, 10, 14, 28, 35, 37, 41, 42, 49, 60, 62, 64, 74, 77, 83, 94.

II. Middle Period.

(A) C. 16, 24, 50, 55, 80.

(B) C. 2, 3, 5, 11, 12, 13, 17, 29, 30, 45, 46, 48, 52, 54, 58, 65, 68, 71, 73, 75, 78, 81, 85, 86, 89, 91, 92, 93.

(C) C. 4, 57, 61, 63, 75, 87.

III. Late.

C. 6, 18, 19, 20, 21, 22, 23, 27, 31, 32, 33, 34, 36, 38, 39, 40, 44, 47, 51, 53, 56, 59, 66, 67, 69, 70, 72, 76, 79, 82, 84.

Graves C. 5, 25, 26, and 43 contain no pottery or other dating material. Similarly the pottery can be classified thus:

Prehistoric Period. Types III, IV, XIII, XXI, L, LIII, LXXX.

I. Early.

(A) First Dynasty. Types I (?), II, III, IV, XIV, XVIII, XX, XXVI, XXVII, XXXV, XXXVI, XLVII, LXI, LXXV, LXXVII, LXXVIII, LXXXI, LXXXVII.

(B) Early. Types I (?), II, III, IV, V, VI, VII, IX, XII, XIII, XIV, XVI, XIX, XX, XXII, XXIV, XXVI, XXVIII, XXX, XXXIII, XXXV, XXXVII, XXXVIII, XLIV, XLV, XLVI, XLVII, LIV, LVI, LVII, LVIII, LIX, LX, LXI, LXII, LXIII, LXVII, LXX, LXXIII, LXXV, LXXVI, LXXVII, LXXVIII, LXXIX, LXXXI, LXXXII, LXXXV, LXXXVII, LXXXIX, XC, XCI, XCV.

II. Middle Period.

Types I, II, III, IV, V, VI, VII, IX, X, XI, XX, XXII, XXIII, XXIV, XXV, XXVIII, XXXI, XXXIII, XXXIV, XXXV, XXXVII, XXXVIII, XL, XLIV, XLV, XLVIII, LII, LIII, LVI, LVII, LVIII, LIX, LX, LXIII, LXIV, LXVII, LXVIII, LXX, LXXIII, LXXIV, LXXVI, LXXIX, LXXXI, LXXXII, LXXXIII, LXXXIV, LXXXVII, LXXXIX, XC, XCIV, XCV, XCVII.

III. Late Period.

Types I, II, III, IV, V, VI, VII, VIII, IX, X, XV, XVII, XXI, XXII, XXIII, XXIV, XXV, XXVIII, XXIX, XXXII, XXXIII, XXXIV, XLI, XLII, XLV, XLIX, LV, LVI, LVII, LVIII, LIX, LX, LXI, LXII, LXIII, LXV, LXVII, LXVIII, LXIX, LXXIII, LXXVI, LXXVIII, LXXIX, LXXXII, LXXXIV, XC, XCIII, XCVIII.

After the close of the prehistoric period the forms associated with the painted types drop out of use, as also does XXI (that found in C. 39 should

really be accounted a different type, as mentioned above); the LIII of the prehistoric grave C. 90 is a variant from the type as found in middle period graves.

The First Dynasty—and of course many of the types which our evidence only enables us to call ' early ' may have been introduced at the beginning of that period—brings in certain forms which persist throughout the cemetery age, while others tend to disappear and at the same time fresh forms come in. By the time we arrive at what we may call the middle period types XII, XIII, XIV, XVI, XIX, XXVI, XXX, XLVII, LIV, LXXV, LXXVII, LXXXV, and XCI appear to have dropped out of use—or at least no further examples of them occur in our limited number of graves, and the new forms XI, XXIII, XXV, XXXI, XXXIV, XL, XLVIII, LII, LIII, LXIV, LXVIII, LXXIV, LXXXIII, XCIV, XCVII and CII begin to be found. The Late Period sees the disappearance of types XI, XX, XXXI, XXXV, XXXVII, XXXVIII, XL, XLIV, XLVIII, LII, LIII, LX, LXIV, LXX, LXXIV, LXXXI, LXXXIII, LXXXVII, LXXXIX, XCIV, XCV, and XVCII, and the introduction of types VIII, XV, XVII, the variant of XXI, XXIX, XXXII, XLI, XLII, XLIX, LV, LXV, LXIX, LXXXIV, XCIII and XCVIII.

From these lists there emerge a few broad principles which confirm the truth of the classification by showing that each group tends to have a character of its own or that there is a definite progress of development or degeneration running through the series. Vertical lug ears are found only in the early group. Of the seventeen types of spouted pots twelve occur in the early period, nine in the middle, and six in the late; of the middle period types only two, LXXXIII and LXXXIV, are not inherited from the foregoing period, and of the late types not a single one is an innovation; clearly the spout is an early feature which does not indeed die out but does become less common as time goes on and is confined to a smaller range of pot-forms. Incised ornament (apart from pot-marks or inscriptions, which cannot rank as decoration) was shown by our trench through the hut site (see p. 151) to be common in the prehistoric wares; in the cemetery it occurs but twice, in graves C. 50 and C. 2, of the early middle and middle periods respectively. Wheel-turned grooving appears only on two pots, XCIII, which is late, as indeed its looks would lead one to suspect, and on an example of LXXXVII found loose in the soil. A well-marked angularity of outline, especially at the shoulder, apparently a feature derived from metal (compare type XLVII with the copper pot TO. 355), and an exaggerated and sharply-angled rim (e.g. XXXIII, XXXV), which may also be taken from metal prototypes, usually imply an early date; thus, taking the most prominent cases, XXXI is middle period, XXXVI First Dynasty, XXXVII early and middle, XXXVIII early and middle, XXXIX middle, XL middle, XLI and XLII late; in the series of kindred shapes XLIII to XLIX the most angular example, XLVI is early, then XLVII, also early, and XLIV, early and middle; of the kindred series LXIII to LXXIV, the sharpest outlines are given by LXX, early and middle, then by LXXI, middle, and LXXII, middle; only four of the types occur in the early period and all are very roughly made. Of the most pronounced rims, XXXIII is early and middle, XXXV First Dynasty and middle, XXXVI First Dynasty and early, XLIV early and

middle, LIV early, LVI of all periods. The early type XXX might be the tall slender vase held by the man in the milking scene, or this might be represented by XXXIII, which recurs at all periods.

Further excavations providing a wider range of material may of course modify some of the conclusions which I have drawn from the hundred graves dug at al-'Ubaid; types here attributed to a single period may be found to have originated earlier or to have continued in use later than the present evidence would suggest; that is likely enough: the multiplication of types should lead to generalizations which I have not been able to make and may possibly convict me of having been premature in making what I did: but I do not think that many of my attributions of types to periods will be proved wrong, and I confidently hope that we have here a basis for the chronology of early Sumerian vase forms which will be of permanent use.

III. DETAILED DESCRIPTION OF GRAVES AND THEIR CONTENTS

C. 1 (Pl. XLIII, 1). Early. A shallow trough 3·00 m. × 1·50 m., lying roughly east by west. There were no bones left. The objects were arranged along one end and one side of the depression and grouped at the other end. The majority of the clay vessels were broken and many could not be typed.

Stone Objects. (1) bowl, XV, TO. 17. (2) bowl, XXII, TO. 18. (3) bowl. VII. (4) bowl, VII, TO. 19. (6) bowl, XXIII, TO. 13. (15) vase, XXXVII, TO. 12. (28) fragments, incomplete, of a bowl of white limestone. Near the stone bowls (1)–(6) were 13 bugle beads of black obsidian and 56 carnelian ring beads, TO. 42, 42a, showing that the head of the corpse had been at this end of the grave.

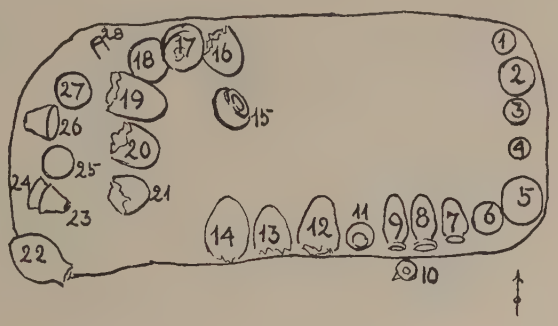


FIG. 37. GRAVE 1.

Pottery. (5) Jar of red ware, broken, not typed. (7), (8), (9), all XXVII, TO. 45, 46, 47. (10) XCI, TO. 48. (11) LVI, TO. 49. (12), (13), (14), (16), (17), (18), (19), (20), (21), (22), (25), (26), all large pots of which only the bases were left and types could not be ascertained. (23), (24), III–IV, inverted; between (22) and (26) was a line of a dozen more cups of the same type all fitted one inside the other. Near (4) was a disk of pottery, probably a vase-cover.

C. 2. Middle Period. This was scarcely identifiable as a grave; there was no proper cutting of the soil and no trace of bones; only a collection of clay pots, all broken, arranged in a double row with a third row parallel with it and some thirty centimetres away. At one corner of this rectangle lay three fragmentary examples of type XCVII, TO. 512, 513, 514; none of the other vase-types could be recognized.

C. 3. Middle Period. The grave was denuded and disturbed. Of the body, only some teeth were found; the vases, &c., were scattered over an area 3·00 m. × 1·50 m.

Metal Objects. By the group (8)–(10) were a copper kohl-stick (?) much decayed, 0·15 m. long, and a twist of copper wire.

Pottery. (1) Jar, the top broken away and the type unrecognizable. (2), (3), (4), (5), LXXX. (6) Jar, the top broken away and the type unrecognizable. (7) LIX. (8), (9), VI, ht. 0·13 m., diam. 0·09 m. (10) XXXIX, ht. 0·10 m.

FIG. 38. GRAVE 3.

C. 4. Late Middle. Larnax Grave. Really two graves side by side. There were two bath-shaped clay coffins each measuring 0·80 m. × 0·35 m. and 0·30 m. high, and on the top of one of them a circular drum-shaped larnax 0·50 m. in diameter which had been set inverted and the base of it had perished so that it was now a mere ring. See photograph, Pl. XLIII, 2.

Ranged along the side of the second larnax, that on which rested the ring, were a number of clay pots, mostly in fragments. The recognizable types amongst these were III, TO. 56, 57. IV, TO. 58, 59, 61, 62, 63, 64. V, TO. 60. LVIII, TO. 53. LX, TO. 50, 51, 54, 55. LXXIX, TO. 50. LXXXI, TO. 52.

C. 5. Middle Period. A small and poor grave. The body crouched on its left side with head to west and face north. Bones in very bad state and not kept. By it two clay pots—one, XLI, ht. 0·22 m., the other probably the same but with the rim broken away.

C. 6. Late. The body seems to have been nearly straight, but the legs slightly flexed at the knee, head north, face east; most of the bones decayed right away, and only part of the skull, right upper arm and tibia recognizable. By the head were four pots: (1) tumbler, X, TO. 65. (2) vase, XLV, ht. 0·06 m. (3) LX, TO. 66. (4) LXI, TO. 67. By the feet were the lower parts of two large jars, not identifiable.

C. 7. Early. Of the body only the teeth were found, showing the position of the head. Close to the teeth, in a row, were the following:

Stone. Bowl of pink-veined limestone, broken, XVII, TO. 102.

Pottery. III, TO. 70; XXIV, TO. 75; XXVII, TO. 73; XLIV, TO. 69; XLV, TO. 68; LIV, TO. 494; LXI, TO. 74.

Close to these objects but apparently not belonging to the same grave and therefore recorded as C. 7. B. was the white limestone bowl TO. 101: as there was with it part of the rim of a clay larnax, this may be the remains of a larnax burial, but the connexion is not certain.

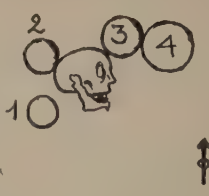


FIG. 39. GRAVE 6.

C. 8. Prehistoric. There was no trace of a body. The grave was simply a collection of pots, &c., lying together, mostly in fragments, just to the west of C. 4.

Stone. Black bowl, VIII, TO. 14, set inverted on the top of a broken pot. Spoon-shaped flint implement TO. 24, and head of a second, TO. 23.

Pottery. III, red clay; IV, roughly made, ht. 0·12 m.; P. xii, painted, TO. 252; fragments of a small pot of black ware, and of other pots not identifiable. A bent clay 'nail', cf. TO. 43; and a fragment of a clay brazier pot possibly resembling XCVII or XCVIII (?).

C. 9. Prehistoric. The depression of the grave was small in area, so that the body must have been crouched closely together, but there remained only a few fragments of decayed bone, not

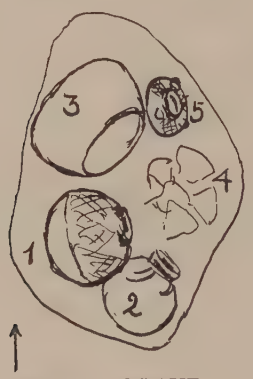


FIG. 40. GRAVE 9.

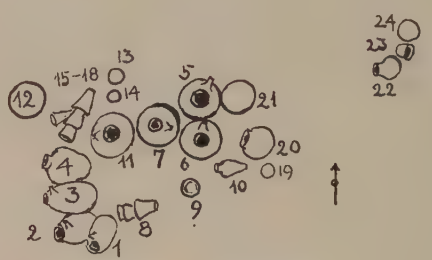


FIG. 41. GRAVE 10.

enough to identify the position. Five clay pots lay uppermost in the grave and the bone remains were below these. In the filling there were a great many sherds of painted pottery. The stone objects lay 0·50 m. away from the vases, outside the depression, but seemed to belong to the grave.

(1) P. x, TO. 253, painted ware. (2) L, TO. P. xii, painted ware. (3) XXI, TO 76. (4) fragments of a vase of greenish clay, incomplete and not typed. (5) XIII, TO. 211.

Stone. 0·50 m. away from the pots, (6) a palette or rubber of sandstone, roughly triangular, 0·23 m. × 0·19 m. (7) Resting on the last, a spoon-shaped flint, TO. 31.

Varia. With these, an oyster shell, TO. 528; a round lump of bitumen; a bone drill, TO. 400.

At 1·50 m. south of the group of pots, and probably not belonging to the grave, fragments of a small painted pot, P. x, TO. 258, ht. 0·074 m.

In the earth close by, with many painted sherds, were found a vase-cover of painted pottery, TO. 251; a spoon-shaped flint, TO. 32; a polished celt, TO. 35; a smaller polished celt, TO. 36; a number of lumps of bitumen in the form of spindle-whorls, TO. 402.

C. 10. Early. No trace of bones. The pottery lay in two groups, apparently both belonging to the same grave. See Pl. XLIV, 1.

(1), (2), (3), XC, TO. 212, 249, 250; (4), (5), (6), (7), LXXXI, TO. 77, 78; (8) VII; a group of three examples, one inside the other, one broken, TO. 213, 214; (9) a bowl of white limestone, IX, TO. 103; (10) XXX, TO. 215; (11) LXXXI, a taller example than the others, (5–7), ht. 0·28 m.; 12) VII, three examples, one inside the other, TO. 216; (13) fragments of a jar of greenish grey ware, broken and unidentified; (14) XCII, TO. 72; (15), LXIII, TO. 217; (16), (17), (18), VII, found underneath nos. 12 to 14; (19) II, TO. 218; (20) fragments of a jar of coarse red ware, untyped; (21) fragments of a jar of greenish ware, untyped; N.B., Nos. (12), (20), (21), lay

0·35 m. higher than the floor of the grave, but seemed to belong to it and to have been put in while the grave was being filled up; (22) LXXIII, TO. 226; (23), (24), VII; these also lay at a rather higher level and a metre away, but probably belong to the grave.

C. 11. (Middle ?) There was no sign of a grave, but by itself in the ground the copper bowl TO. 7. Close to this but not necessarily connected with it was the green mottled stone bowl TO. 20 (VII).

C. 12. Middle Period. No trace of body, only a collection of pots disturbed and mostly broken. Types V; XX, TO. 80–84; XXXVIII, TO. 79; all the rest were too fragmentary to be typed, but there were remains of several spouted vases.

C. 13. Middle Period. No bones, the grave hopelessly ruined, and out of the many fragments of pots only two complete specimens, the rest not identifiable. VI, TO. 227; XX, TO. 85.

C. 14. Early. No bones. There were a few fragments of a clay larnax mixed up with the other pottery remains, but not enough to show that this had been a larnax burial; it was more likely that there had been a later burial of the sort at a higher level. The grave as found was hopelessly disturbed, but the objects seemed all to belong to one interment.

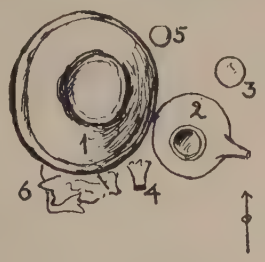


FIG. 42. GRAVE 14.

(1) Inverted over some of the other pots, a very large clay bowl, XIX, TO. 505; (2) XLIV, rim broken; (3) cup of drab ware, broken, XIII; (4), (5), (7), IV, all broken; (6) larnax fragments.

C. 15. First Dynasty. No trace of body.

(1) XXVI, but without the lug on the shoulder, and the shoulder defined by a sharp ridge; found in fragments; ht. 0·35 m.; (2) LXXVI, drab clay, much broken, ht. 0·35 m.; XCIX, cylinder vase, ht. 0·42 m., diam. 0·15 m., broken, which is virtually identical with one found against the temple wall; the shape is clearly derived from a stone prototype, and we can compare with it examples in chalcite, &c., with inscriptions of Rimush of Agade (*c.* 2650 B.C.) found by us at Ur; (4) clay tray, XX, TO. 100.

Below these lay a straight-sided bowl of red clay, ht. 0·08, diam. 0·13 m., in fragments, and also XIV, TO. 87.

C. 15 B. Close to C. 15, but not belonging to it, was a group of pots with no traces of any body. III, TO. 88; XVIII, TO. 228; LXXV, fragment, and fragments of a second spouted pot probably of the same shape.

C. 16. Middle Period. No trace of body. IV, broken; LVI (?), broken; LXXXVIII (?), two broken examples.

C. 17. Middle Period. No trace of body, and all the pots badly broken; the only recognizable types were XXXIII (?), XXXIV (?), and LIII.

C. 18. Late. A shallow rectangular trough cut in the hard soil; against one side there were set in it two large square flat bricks with finger-marks on one face. The grave, which was only just big enough to take the body, lay at an angle of 275 degrees. The body was extended, head west, face south. The bones were fairly well preserved, and the whole skeleton was removed; p. 239.

By the heels of the corpse, let down slightly into the earth floor, was a clay cup, VIII, TO. 229. Close to the head was a large spindle-whorl of green stone, and behind the head a rough stone pounder, almost cubical.

C. 19. Late. A shallow trench grave like C. 18, which had been covered in with bricks of the large flat finger-print type, and with some which had no finger-prints and were more like bricks of the Third Dynasty. The bones had decayed entirely away, and there were no objects in the grave.

C. 20. Late. The depression cut for the grave was 1·10 m. long by about 0·30 m. wide, lying 26 degrees east of north. Of the body only the teeth remained, at the south-south-west end; the vases lay at this end, behind the head, and along the north-west side of the depression.

(1) LXX, drab clay, TO. 125; on the side an incised inscription, see Fig. 74, p. 206; (2) LXII, TO. 90; (3) LXXIX, 59, 92; (4) IV. TO. 230; (5) a large shell; (6), (7), (8), (9), IV, red clay, all broken; (10) LXI, TO. 93; (11) VIII, TO. 94; (12) two examples, one inverted above the other, both of light drab ware; (13) LXXXII, TO. 95; (14) IV, large example, broken, lying underneath No. 4; (15) LXV, TO. 96.

Beyond the limits of the grave as shown in the drawing, at the north-north-east end, lay a further group of pots which may have belonged with the rest; (16) two cups, IV and V, one

inside the other; (17) IV, one example; (18) XLI, greenish ware, ht. 0·27 m.; (19) LXXVIII, TO. 97.

C. 21. Late. No body, and no depression in the soil; simply a group of pots, &c.

Stone. Flint implement TO. 25; a very rough stone rubber.

Pottery. A copy of a spoon-shaped flint implement in greenish clay with black paint, TO. 40, Pl. XLVI, 2; LX, TO. 232 (broken); LXVIII, TO. 233 (broken). It was impossible to decide whether these objects were really all contemporary; they were not in any apparent order.

C. 22. Late. A larnax burial very much broken up; no body, and only one or two large fragments of the clay coffin; these lay at a low level and the pots somewhat higher, No. (6) actually resting on the main piece of the larnax.

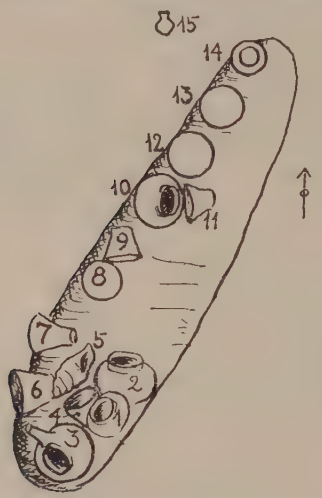


FIG. 43. GRAVE 20.

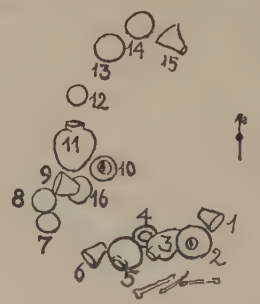


FIG. 44. GRAVE 23.

(1) White limestone bowl, VIII, TO. 105; (2) LXV, TO. 99; (3), (4), (5), IV, TO. 235 and two others; (6) LX, TO. 234.

C. 23. Late. A few bones lay at the south end of the ' grave ', but were too few and too disturbed to prove the position of the body; just north of them was a group of pots, (1) to (7), and north-west of these stretched a row of pots which may have belonged to the same interment.

(1) IV, TO. 106; (2) XXV, TO. 110; (3) LX, TO. 236; (4) LXXIII, red ware, ht. 0·12 m., broken; (5) LVIII, TO. 109; (6) IV, TO. 107; (7) stone object, TO. 33; (7 A) I, ht. 0·065 m., broken; on the top of it fragments of another pot, LXXIII; (8) white limestone bowl, TO. 104; (9) IV, ht. 0·13 m., broken; (10) LIX (?), broken; (11) LX, TO. 111; (12) III, broken; (13) III, TO. 112; (14) VI, red clay, ht. 0·13 m.; (15) VI, TO. 108; (16) I, fragments only, found below No. (8).

Near the bones were two bugle beads, one of carnelian, one of glazed frit.

C. 24. Middle Period. No trace of body. Objects in much confusion.

Stone. Part only of a bowl of green stone.

Pottery. IV, two examples in red and in drab clay; XXXIV, broken; LVI, two examples, both broken; and other fragments not identified.

C. 25. (?) A single large pot too much broken to be identified, and by it some teeth, a few bits of bone, and seven (broken) clay ' nails '.

C. 26. (?) Empty.

C. 27. Late. Larnax burial, the upper part of the coffin destroyed and its walls standing only 0·15 m. high; no trace of the cover. It lay 65 degrees east of north. The body was contracted, on its right side, with the head to the south-west; the skull was badly broken and many of the smaller bones had perished, but the major bones were sufficiently preserved for the position to be fixed. The metal and stone objects were placed inside the larnax with the body, the pottery was outside, ranged against the north-west side of the coffin.

Metal Objects. (1) copper bowl, TO. 6; this lay against the small of the back of the corpse; (2) a long copper pin, TO. 4, which lay point upwards, the point resting on the middle

vertebrae and the bent haft on the right shoulder; probably it was used to pin together a cloak which was wrapped round the body and hung from the right shoulder, a garment similar to that worn by kings of the Third Dynasty. (3) round the neck, a set of beads, 10 rough lentoids of lapis lazuli and 9 rings or bugles of carnelian, with one lapis pendant, TO. 8, and with these, lying below the skull, a small twist of copper wire, TO. 3, which was perhaps an ear-ring.

Stone. (12) by the knees, an alabaster pot, XXXIX, TO. 11.

Pottery. All outside the coffin. (4), (5), II, TO. 237, 238; (6) LXI, TO. 239; (7) LXI, broken to fragments; (8) LX, TO. 114; (9) fragment of a tubular clay handle (?), 0·09 m. long.

At 0·30 m. from the foot of the larnax were two more pots, (10) LVI (?), rim missing, and (11) a second, apparently similar, broken above. These do not necessarily belong to the tomb.

C 28. Early. Grave a good deal disturbed and most of the contents broken. The skull had disappeared, the bones were reduced to powder, but their position could be distinguished; the

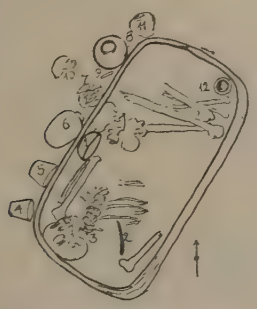


FIG. 45. GRAVE 27.

FIG. 46. GRAVE 28.

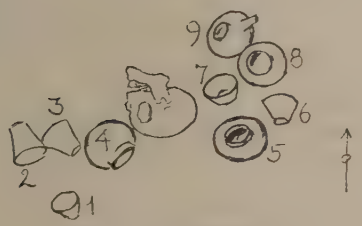


FIG. 47. GRAVE 29.

body had been strongly flexed and lay on its left side with its head north-east. At the base of the pelvis, evidently having been slung in a belt, was a copper dagger, TO. 2; the handle was missing and had probably been of wood, but the copper pin which had secured it lay 0·08 m. from the end of the haft and showed its original length. There were only three pots, two of which, (1) and (3), were too fragmentary to be typed, (2) LIII, TO. 248. See photograph Pl. XLIV, 2.

C. 29. Middle Period. Grave much disturbed, apparently by the intrusion of a larnax burial, the coffin of which lay just to the east. Of the body, only the skull remained, in fairly good condition; *v.* ch. X. The pottery lay on each side of the skull. (1) IV, TO. 117; (2), (3), IV, each ht. 0·12 m.; (4) LX, ht. 0·20 m.; (5) LII, TO. 119; (6) IV, TO. 118; (7) IV, two examples, one above the other; (8) LX, TO. 116; (9) XLVIII, TO. 120; (10) V, TO. 115.

C. 30. Middle Period (?). No trace of any body, and no proper grave; simply a group of nine clay cups, six of type II and three of IV.

C. 31, 32, 33, 34. Late. A group of four burials under inverted circular clay coffins. Owing to the denudation of the ground the larnakes, which lay very close to the surface, had perished, leaving only their rims, and there were no objects of any sort remaining with them, and no trace of bones.

C. 35. Early. A large and a rich grave, but one which had suffered considerably by denudation. Of the body, the skull alone was well preserved and could be kept, the other bones being disturbed

and much decayed; it lay on its left side, flexed, with the head to the south-west. Below the head a set of beads, TO. 10.

(1) II, ht. 0·12 m.; (2), (3), II, one inside the other, both broken; (4) I, ht. 0·07 m., drab clay, broken; (5) I, similar; (6) II, TO. 121; (7) base only of pot of unknown type; (8) LVIII (? top missing), TO. 131; (9) LXXIII, TO. 122; (10) LXVII, TO. 123; these two lay against the mouth of the corpse, the normal position for these small vases; (11) LXXXII, TO. 129; (12), (13), II, TO. 124 and another, one inside the other; (14) IV, broken; (15) LXXVI, drab ware, broken; (16) XXIV, TO. 91; (17) XXXIII, TO. 126; (18) VIII, TO. 127; (19) LXXXII, TO. 128; (20) LXXVII, TO. 247; (21) XIV, TO. 130; found underneath No. (18). Below the remains of the body was a clay cup II, ht. 0·13 m., with the finger-bones inside it, so that it seems to have been held in the hands of the corpse.

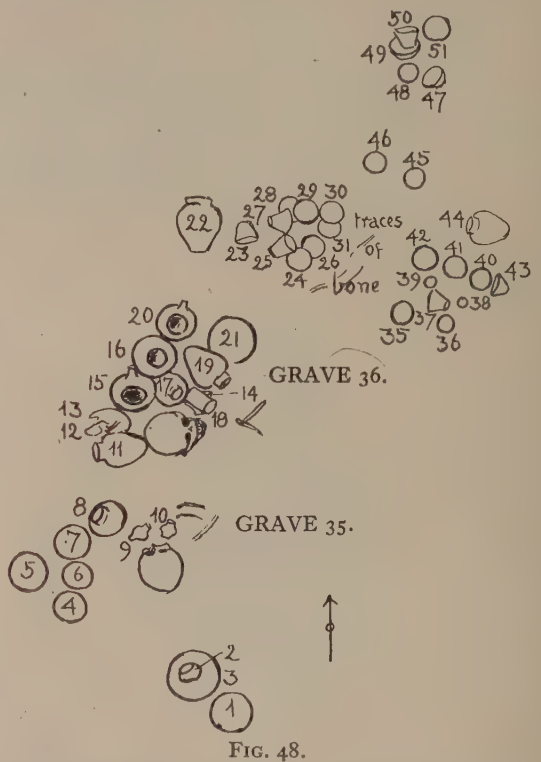


FIG. 48.

C. 36. Late. This grave overlapped with C. 35, the skull lying right against the group of pots (11) to (21) assigned to that burial, but C. 36 was at a slightly higher level, which served as a criterion, and the distribution of the furniture between the two graves is probably correct. Of the body only the skull remained; the pottery was grouped on either side of where the body must have lain, and beyond its feet. Owing to the difficulty of determining, before the excavation of the two graves was complete, the right attribution of the pottery, the numbers were taken on in one series from C. 35, and the contents of grave C. 36 begin with number (22).

(22) XXV. (?), much broken, drab clay; (23), (24), II, TO. 133, and another; (25) IV, ht. 0·12 m., broken; (26), (27), (28), (29), (30), (31), (32), (33), (34), (35), (36), II, TO. 133, 241, and others, some broken; (37) V, red clay, broken; (38), (39), VIII, TO. 132 and another; (40), (41), (42), (43), II, TO. 134 and others; (44) LVIII, TO. 240; (45)–(51), II, all in reddish or drab clay.

C. 37. Early. The grave was well preserved (see photograph, Pl. XLV, 1); it lay next to grave C. 40, and was not easy to distinguish from it, but was at a slightly lower level (*c.* 0·10 m.), though as the pots, owing to the inequalities of the tomb floor, were themselves not all at the same level, the difference in depths was not so helpful as it might have been. The body was in a strongly flexed attitude, lying on its left side with the head to the west; the skull was kept, but the arm bones were quite rotten and the legs had altogether disappeared. The copper bowl, No. (1), had been removed before the photograph was taken, as the grave was in process of being cleared at the week-end, and the bowl could not safely be left out in position.

FIG. 49. GRAVE 37.

(1) copper bowl, TO. 5; (2) XXXIII, red clay, ht. 0·30 m.; (3) XXIII, TO. 136; (4) XXV, TO. 143; (5) LIII, broken; (6) LXXIX, TO. 141; (7) II, broken;

(8), (9), LIII, both broken; (10) LIX, ht. 0·25 m., broken; (11) LX, TO. 142; (12) LX, TO. 137; (13), (14), (15), (16), II, all broken examples in red clay; (17) IV, ht. 0·12 m.; (18) IV, ht. 0·14 m.; (19) LX, TO. 138.

C. 38. Late. A burial under an inverted oval clay larnax of which only the rim survived; measurements, 0·90 × 0·70 m. Against the side of it were three clay pots, two of type XVII, TO. 139, 246, one inside the other, and fragments of a large unidentifiable pot.

C. 39. Late. Remains, in very bad condition, of a larnax burial. Under a fallen piece of the side of the coffin a skull, two cockle-shells, and two pots, XXI, a variant of this type without the groove for the lid, of slatey grey ware much flaked by the action of salt, and broken; ht. 0·06 m., diam. at rim 0·085 m., and at base 0·06 m.; LX, TO. 140.

C. 40. Late. A large and a rich grave which had disturbed two earlier burials, C. 37 and C. 42; as there is a difference of only 0·10 m. in level, and the pots are not all at the same depth, it was impossible to be certain in every case of the correct attribution of the furniture; probably objects (1) to (37) belong to C. 40 and (38) to (40) to C. 42.

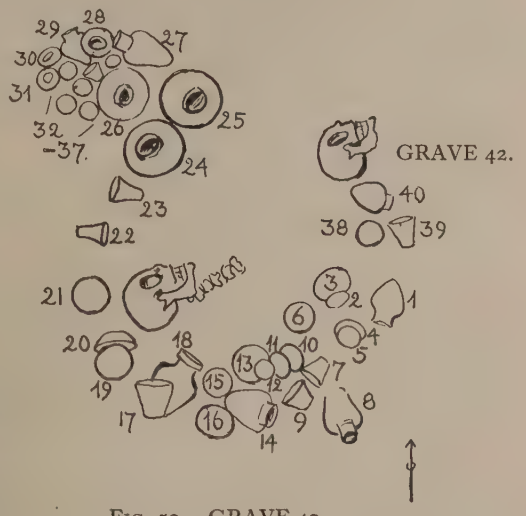


FIG. 50. GRAVE 40.

Of the body only the skull and a few vertebrae were preserved; the pots were grouped round the skull and along the front and back of the body.

(1) LX, TO. 164; (2) II, red clay, broken; (3) V, red clay, ht. 0·17 m., broken; (4), (5), (6), (7), II, TO. 148 and three broken; (8) XXXIII, TO. 146; (9), (10), (11), (12), (13), II, TO. 149, 150, and others; (14) LXIII, light drab clay, broken; (15) V, TO. 242; (16) II, broken; (17) V, greenish drab clay, ht. 0·18 m.; (18) LVI (?), drab clay, much broken; (19) II, ht. 0·08 m.; (20) II, broken; (21) remains of five cups, II (?); (22) V, TO. 243; (23) IV, TO. 244; (24) XXIII, TO. 145; (25) XXIII, fragments only; (26) XXIX, drab clay, ht. 0·35 m.; (27) XXXIII, TO. 147; (28) LVIII, TO. 158; (29) LX, TO. 161; (30) LX, TO. 162; (31) LXI, TO. 163; (32) to (38) II, TO. 151–7, 245; two more of these were found below Nos. (23), (24); (39) V, ht. 0·19 m.; (40) LIX, drab ware, broken. See Pl. XLV. i.

C. 41. Early. Of the body there remained only traces of the skull, and by these one carnelian bead.

(1) LX, TO. 165; (2) LX, TO. 166; (3) II, red clay, broken; (4) III, red ware, ht. 0·085 m., broken.

The remaining pots lay at a short distance from these and at a slightly higher level; they may belong to a different grave. (5), (6), LX, both broken; (7) II, broken; (8) XIV, TO. 167.

C. 42. See above, under C. 40. The grave lay directly below C. 28, and must therefore be quite early. In addition to the three clay pots already attributed to it, there certainly belonged two limestone bowls, which were found one inside the other just about where the pelvis of the body must have been. Of the body itself only the skull was left.

C. 43. (?) Empty.

C. 44. Late. No traces of the body, only a few small objects lying together to mark the position of a grave. These were

Stone. Flint implement, TO. 529.

Pottery. XLII, TO. 168; LXIII, TO. 169, example with pot-mark incised; fragment, with handle, of a clay model of a copper (?) knife, TO. 530 (Pl. XLVIII).

C. 45. Middle Period (?). No traces of any body, only a group of three cups, XI, TO. 170, 171, 172; and the base of another vase, type doubtful.

C. 46. Middle Period. Three groups of pots in a row, with a few traces of bone, apparently from the skull, by the westernmost group.

(1) XXIV, broken; (2), (3), LX; (4) VI; (5), (6), LX; (7), II; (8) IV; (9) II; (10) LX; (11), (12), (13), IV.

When these had been removed there was found immediately below them a skeleton which

presumably comes from an earlier grave, since it is quite abnormal for the furniture of a tomb to be placed actually on the top of the body; but bones and pots were so closely associated that the burial was not given a separate number. The body was straight, the legs only flexed at the knee and hip, the arms were missing; the head lay close to the central group of pots (Nos. (6) to (9)), and the body was at right angles to the general line of the vases; it thus lay with its head south-south-west, on its right side. Just in front of the breast were a copper bowl, slightly broken, TO. 352, and a clay vase, XXXIII, of drab ware, ht. 0·33 m.

C. 47. Late. Larnax burial, the coffin 1·42 m. long by 0·65 m. wide. The body lay on its right side with the head south-west; the bones were in very bad condition. In the coffin was a square brick of the Second Dynasty type. All the objects lay outside the coffin and covered a considerable area, but as against the north-west side of the larnax there were leg-bones and a few traces of other bones, obviously from a separate burial, it cannot be affirmed that all the objects belong to the same interment or are of the same date: at the same time no distinction could be drawn between them.

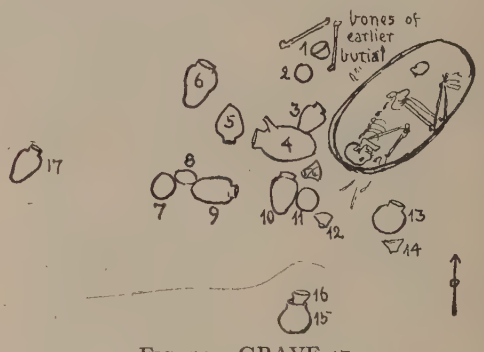


FIG. 51. GRAVE 47.

(1), (2), II, one broken, lying between the leg bones outside the larnax; (3) LX, reddish clay; (4) LXXIX, reddish clay, ht. 0·26 m.; (5), (6), LX, both broken; (7) II; (8) IV, broken; (9) LX, reddish clay, the surface slightly ribbed on the wheel; (10), (11), LX, drab clay; (12) IV; (13) LX; (14) II; (15) LX; (16) IV (inverted over No. (15); (17) LX. All of these were in fragments.

C. 48. Middle Period. No trace of any body, only a small collection of pots lying close together. IV, three examples, all broken; XXXIII, ht. 0·35 m.; XXXIV, yellow clay, broken; LXI, four examples, all broken.

C. 49. Early. The body, fairly well preserved, lay in a crouched position on its right side with the head north-west. The three vases were by the head.

(1) LXXXV, TO. 501; (2) LXXVII, TO. 497; (3) LVI, ht. 0·16 m., red clay, smooth and very lightly burnished.

C. 50. Middle Period (early). No trace of any body. Lying together were three objects.

Stone. Fragment only of a white marble bowl, shape XVIII.

Pottery. LVI, TO. 490; XCV, TO. 487.

C. 51. Late. Of the body there were left only the leg bones and the pelvis, that of a woman, and mixed with these the remains of the bones of an infant. The legs were but slightly flexed. The upper end of the grave had been entirely ruined away, and all the objects remaining were at the foot end.

(1) LVI, whitish clay, ht. *c.* 0·16 m., broken; (2) II, ht. 0·08 m.; (3) bowl of dark green stone, broken but complete, TO. 333; (4) XXVIII, TO. 463; (5) LX, red clay, ht. *c.* 0·20 m., broken; (6) LXVI, light red clay, ht. 0·18 m.; (7) alabaster bowl with decorated rim, TO. 323; this lay rather lower, under the bones, and one of the infant's teeth was inside it; (8)–(12), IV and V, mostly broken; (13) a lump of bitumen shaped as a spindle-whorl; (14), II, about ten examples, all broken.

C. 52. Middle Period. No trace of any body, but all the objects close together and obviously connected.

(1) pin of copper with a head of lapis-lazuli and gold, TO. 359 (Pl. XLVIII); (2) copper axe, TO. 356; (3) white stone bowl, VIII, TO. 326; (4) white stone bowl, X, TO. 324; (5) clay pot LX, red clay, ht. 0·20 m.; (6) clay cup II, light drab clay, diam. 0·15 m.

C. 53. Late. A mixed burial; one body, of which there remained the skull, much damaged, and the pelvis and part of the leg bones, was crouched, lying on its left side, head south-west; of the other there were only the leg bones, and these were extended with the toes north. Pot No. (11) must belong to this second burial, the remainder apparently belonged to the first, and this was probably the later in point of time, its intrusion having wrecked the grave with the extended body.

(1) bowl of dark grey stone, XIV, TO. 327; (2), (3), (4), II, of light red and of drab clay; (5)

LXI (?), light drab clay, ht. *c.* 0·20 m., rim gone; (6) LXI, light drab clay, ht. 0·23 m.; (7) LXXIX, light drab clay, ht. 0·24 m.; (8) II, broken; (9) LXIII, pinkish drab clay, ht. 0·12 m.; (10) LXIII, similar, broken; (11) LXI, drab clay, broken; by this, a stone rubber, loaf-shaped. In the soil round the grave, but not necessarily belonging to the interment, were further, (12) XXIX, of greenish drab clay, ht. 0·22 m.; (13) XXXIV, light red clay, ht. 0·30 m.; (14) LX, drab clay, ht. 0·175 m.

C. 54. Middle Period. No trace of any body, only a small group of pots; II, two examples; VI, drab clay, ht. 0·18 m.; LVI (?), light drab clay, ht. *c.* 0·23 m., rim all gone; LX (?), fragment only.

C. 55. Middle Period (early). No trace of any body. The four principal pots formed a row, clearly belonging together, and against them were piled two 'nests' of cups, one inside the other, five in each nest.

VII, ten examples, as described above, all of very thin clay, 0·13 m. high; LXXXVII, variant of the type, having a ring foot; red clay, ht. 0·46 m.; XC, red clay, ht. 0·58 m., and a second example, broken.

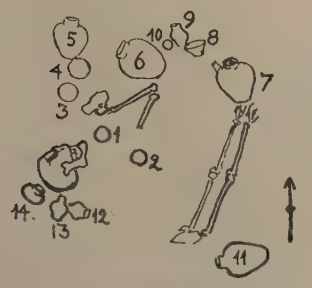


FIG. 52. GRAVE 53.

FIG. 53. GRAVE 56.

C. 56. Late. The body, well preserved, was in a crouching attitude, resting on its left side, head north-west; the objects (1) to (15) were set round it from the back of the elbow to the front of the knees. A little way to the north of them was a second group of pots, twelve in all, which was quite separate and lay at a level 0·20 m. lower than the first; there was no body with these, and it was impossible to say whether they belonged to the same or to a different burial; this group was therefore called C. 56 B, and its contents were numbered from (1) to (12) (see photograph, Pl. XLV, 2).

(1) II, drab clay; (2) V, greenish drab clay, ht. 0·155 m.; (3) XXXIII, greenish drab clay, ht. 0·31 m.; (4) LX, greenish drab clay, ht. 0·19 m.; (5) LXVII (?), red clay, broken; (6) LIX, greenish drab clay, ht. 0·18 m.; (7) V, greenish drab clay, ht. 0·15 m.; (8) LX, red clay, ht. 0·19 m.; (9) LXVIII, rough, greenish drab clay, ht. 0·10 m.; (10) V, greenish drab clay, ht. 0·12 m.; (11) LXXVI, TO. 496; (12), (13), II; (14) LX, broken.

C. 56 B (see above, C. 56).

(1) LXXIX, greenish drab clay, ht. 0·27 m.; (2) XXXII, TO. 464; (3) XXV (?), rim gone; (4) LVIII, light red clay, ht. 0·18 m.; (5) LX, dark red clay, ht. 0·095 m.; (6) II, red clay; (7) LX, red clay, rim gone; (8) LX, light red clay, ht. 0·25 m.; (9) LX, red clay, ht. 0·25 m.; (10) IV, red clay; and close to these but rather nearer to the skull of C. 56, (11) XXIV, reddish drab clay, ht. 0·32 m.; the body slightly ribbed; inverted over it a cup IV, broken; (13) XXIV, reddish drab clay, less ribbed than the last.

C. 57. Middle Period. Body strongly flexed, lying on its right side, head west.

(1) II; (2) IV; (3) II; (4) LVIII, drab clay, ht. 0·18 m.; (5), (6), II; (7) IV; (8), (9), IV, large examples, ht. 0·22 m., both broken; (10) LX, red clay, ht. 0·17 m., broken; (11) LX, red clay, broken; (12) LXXXII, greenish drab clay, ht. 0·24 m.; (13) LXXXII, greenish drab clay, broken; (14), (15), XXV, drab clay, ht. 0·24 and 0·25 m. respectively; (16) LXXXII, fragments only; (17) XXV, drab clay; (18) IV, inverted over No. (11); (19) a lentoid amulet of brown clay with incised ornament, TO. 413.

C. 58. Middle Period. Of the body only the skull remained, very badly crushed; against the mouth was a small vase XXXIX, TO. 460. By the throat were four bugle beads of white shell and half of a shell cut lengthwise to serve as a pendant (?); lower down, near where the

hands should have been, was an ovoid amulet of black steatite with engraved ornament, TO. 414.

C. 59. Late. Of the body only the skull remained, much broken. By it were a few beads of lapis lazuli and carnelian, which had been strung alternately, with only a few on the string; a small twist of copper wire, perhaps an ear-ring, cf. TO. 3; a ball of hard brown clay, like a child's marble; also

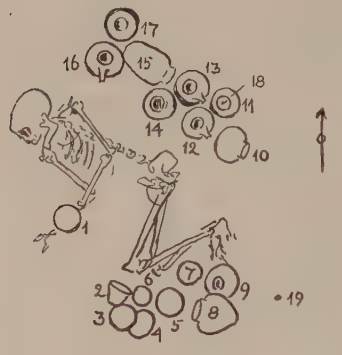


FIG. 54. GRAVE 57.

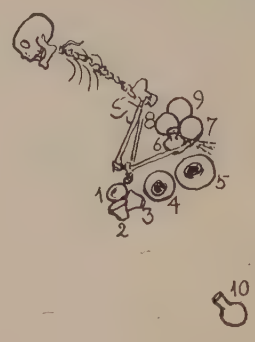


FIG. 55. GRAVE 60.

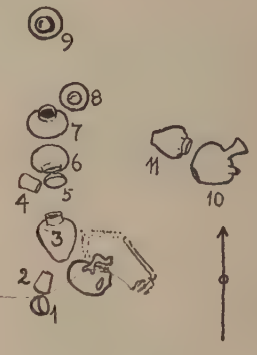


FIG. 56. GRAVE 61.

(1) bowl of white stone, XII, TO. 325; (2) II, red clay; (3) LX, coarse red clay, ht. 0·20 m.; (4) II, drab clay; (5) LIX, drab clay, ht. 0·23 m.; (6) IV, ht. 0·11 m.

C. 60. Early. All the bones very much decayed, but distinguishable. The body was slightly flexed (from head to pelvis straight), lying on its right side, head west.

(1), (2), (3), II, the three resting together on the hand of the corpse; (4), (5), LX, drab clay, both broken; (6) XLVI, red clay, ht. 0·09 m.; (7), (8), (9), II; (10) L, reddish drab clay, ht. 0·1 m.

C. 61. Middle Period (early). Of the body there remained the skull and the bones of the left arm; the body had clearly been flexed, lying on its right side, the head north-east.

(1) IV, broken; (2) V, broken; (3) LXXXIV, drab clay, ht. 0·215 m.; (4) IX, TO. 469; (6) IV, drab clay, ht. 0·12 m.; (7) LXI, light drab clay, ht. 0·26 m.; (8) IV, drab clay, broken; (9) IV, light red clay, broken; in it were the toe bones; (9) IV, light red clay, ht. 0·21 m., lying at a higher level and perhaps not belonging to the grave; (10) LXXXIX, TO. 503; (11) LXXI, TO. 475; at a slightly higher level and perhaps not belonging to the grave were two pots not drawn in on the grave plan; (12) LVIII, light drab clay, ht. 0·21 m.; (13) LVIII, light drab clay, ht. 0·21 m.

C. 62. Early. The grave lay immediately under C. 53, about 0·10 m. below it; it was itself a mixed grave, containing two skulls but no other bones; by the side of the lower skull lay a vase XLVI, TO. 456. By the higher skull (and therefore intermediate between it and the pots of C. 53) were two pots, LXII, coarse light creamy ware, ht. 0·15 m.; LX, pinkish drab clay, ht. 0·20 m.

The lower skull was preserved, see ch. X.

C. 63. Middle Period. The body preserved all but the lower bones of the legs. It was very slightly flexed, lying on its left side, the head west. Skull preserved, see ch. X.

(1) copper bowl, TO. 353; (2) clay pot XXXIII, light drab clay, ht. 0·30 m.; (3) XXXIII, light drab clay, ht. 0·32 m.; (4) XXXIV, drab clay flared to red, ht. 0·30 m.; (5) just over the place of the heart a small lump of copper, the shape destroyed by oxidization, and with it a fragment of worked and polished bone.

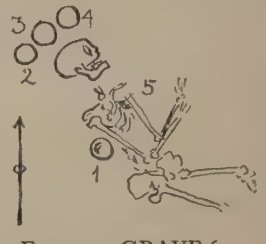


FIG. 57. GRAVE 63.

C. 64. Early. Bones represented by a little white dust. The grave completely destroyed; the objects do not necessarily belong together.

(1) Fragments of a plain red pottery bowl, shape uncertain; on it one half of a painted pot P. viii, TO. 515; (3) L, variant with longer neck, greenish clay, ht. 0·17 m.; (4) fragments of bowl P. v, TO. 524.

C. 65. Middle Period. No trace of the body, only four pots, &c., all together.

Stone. Bowl of white marble, VIII, TO. 328; a few beads, lapis lazuli and shell, with a rhomboidal amulet of white quartzite, TO. 419; three shell rings.

Metal. Remains of a copper pin, TO. 420.

Pottery. III, two examples; LXVII, ht. 0·075 m.

C. 66. Late. Larnax burial. The clay coffin was inverted and lay east by west. Pots (1) to (8) lay against its north side, pots (9) to (12) were inside it. Three square finger-marked bricks were laid flat in a row to serve as a floor for the grave (see photograph, Pl. XLVI, 1).

(1) Bowl of green stone, VII, TO. 329; (2) bowl of yellowish white lime stone, XXI, TO. 330; (3) bowl of dark grey mottled stone, X, TO. 331; (4) XCVIII, TO. 495; (5), (7), II, both broken; (6) XCVIII, broken; (8) LXVII, red clay, rough, ht. 0·055 m.; (9) LXI, reddish drab clay, broken; (10) LXII, reddish drab clay, broken; (11) LXII, similar, broken; (12) LVII, drab clay, ht. 0·22 m., broken.

C. 67. Late. Grave at a much higher level than those near it. The skull crushed and the bones decayed and displaced; the body seems to have lain on its left side with the head east (?). (1) LX, light drab clay, ht. 0·21 m.; (2), (3), LXIII, rough reddish clay, ht. 0·105 m., one broken;

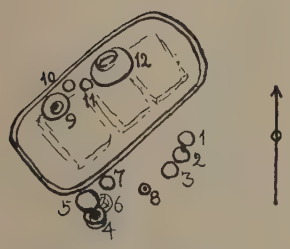


FIG. 58. GRAVE 66.

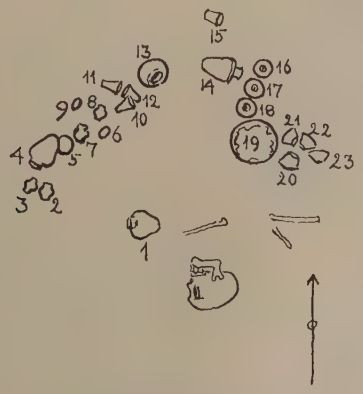


FIG. 59. GRAVE 67.

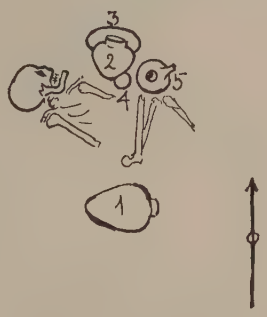


FIG. 60. GRAVE 68.

(4) LX, light greenish drab clay, ht. 0·21 m.; (5) bowl of white limestone, VIII, TO. 344; (6), (7), (8), LXIII (or LXVIII; small roughly made pots), ht. 0·10–0·12 m.; (9) II, broken; (10), (11), (12), V, light drab clay, ht. 0·13 m., two broken; (13) LX, greenish drab clay, ht. 0·20 m.; (14) LXXXII, drab clay flaring to red, ht. 0·25 m.; (15) X, reddish drab clay, ht. 0·105 m.; (16) LXI, light drab clay, ht. 0·21 m.; (17) LXI, similar, a cup, IV, inverted over its mouth; (18) XXIX, very light drab clay, ht. 0·18 m.; (19) base only of very large jar, type unknown; (20), (21), (22), III; (23) V; (24), (25), II, broken.

C. 68. Middle Period. The grave lay underneath C. 67, extending a little to the east of it. Skull crushed, and all bones in very bad condition. The body lay crouched right up, on its left side, the head south-west.

(1) A spouted pot of light drab clay, too much broken to be typed; (2) LIX, light red clay, ht. 0·18 m.; (3), (4), II, both broken; (5) LXXIX, light greenish drab clay, ht. 0·22 m., rim much broken.

C. 69. Late. No trace of any body. The pots lay in confusion and at different levels, (5) and (6) high; (2), (7), and (9) much lower than the rest. The pots might belong to neighbouring graves, or to graves which have been ruined away.

II, three examples of very light drab clay; IV, red clay, ht. 0·11; XXIII, two examples, light greenish drab clay; LIX, very light drab clay, ht. 0·21 m.; LXI, two examples, light greenish drab clay, ht. 0·31 m.

C. 70. Late. The body was almost extended, only the knee-joints being flexed; it lay on its left side with the head east.

(1) XCVI, TO. 488; (2) XXXIII, greenish drab clay, ht. 0·26 m., top broken; (3) LIX, greenish drab clay, ht. 0·21 m.; (4) IV, red ware with creamy slip, inverted over (3), broken; (5), (6), IV, red clay broken; (7) LIX, reddish drab clay, broken; (8)–(16) II; (17) IV, broken, inverted over (18) LXXXIII, greenish drab clay, ht. 0·18 m.; (19) LX, greenish drab clay, ht. 0·19 m.; (20) IV, red clay broken; (21)–(23), IV; (24) LXXXIII, broken; (25) II; (26) XLIX, TO. 457;

(27) LXXXIII, TO. 499; (28), (29), XV, TO. 491, 492; and mixed up with these some more cups, II, broken.

C. 71. Middle Period. There remained only a skull, crushed, and some broken pots II, IV, LVIII, LX.

C. 72. Late. Larnax burial. The coffin, which was inverted over the body, was circular, with a diameter of 0·95 m. and a height of 0·35 m., decorated with a line of raised rope moulding round the base and rim and on one side two loops of rope moulding hanging from the rim band. The walls and the base were made separately and stuck together before firing.

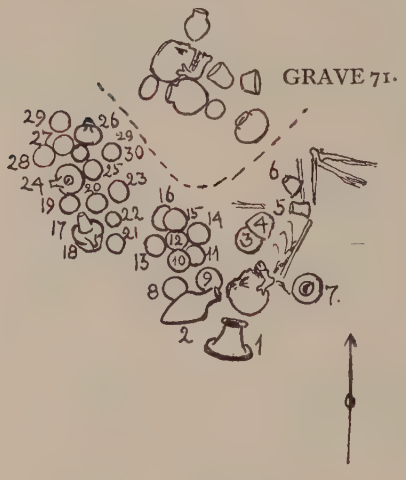


FIG. 61. GRAVE 70.

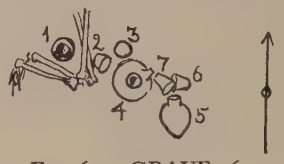


FIG. 62. GRAVE 76.

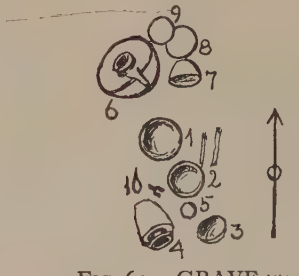


FIG. 63. GRAVE 77.

Of the bones, only part of the skull remained, the rest having decayed; with these there were two pots, LXII, reddish drab ware, ht. 0·085 m.; LXIII, red clay, ht. 0·085 m.

C. 73. Middle Period. No trace of any bone remains, but where the head of a corpse must have been lay a small group of objects, thus:

Metal. Copper pin, TO. 368; a coiled copper ring, TO. 411, and fragments of a second like it.

Stone. Alabaster pot, XXXIV, TO. 347; a string of beads of copper, carnelian and lapis lazuli, together with a lapis pendant in the form of a circular plate engraved with a spiral, TO. 410.

C. 74. Early. Only the skull remained, and this lay a little apart from the pots and may not have belonged to the same grave.

(1) XXVI, TO. 509; (2) XLVII, TO. 459; (3) LXX, red clay, ht. 0·065 m.; (4) XVI, TO. 489; by the skull, a number of small ring beads of pink pebble, TO. 408.

C. 75. Middle Period. No trace of any body; merely a group of seven (?) large pots, all broken, apparently all of type LVIII.

C. 76. Late. Little more than the leg bones left of a body in crouched position, the feet almost touching those of C. 63.

(1) Copper vase, TO. 355; (2) IV, drab clay, ht. 0·125 m.; (3) X, red clay, ht. 0·10 m.; (4) LXXXVI, TO. 502; (5) LIX, drab clay, ht. 0·15 m.; (6) II, broken; (7) IV, broken.

C. 77. Early. Of the body there remained only the skull and parts of the arm bones; attitude therefore uncertain. The skull rested in the limestone bowl (2), and was fixed firmly to it.

(1) bowl of white marble, TO. 345; (2) bowl of soft white limestone TO. 426, in which was the skull; (3) copper bowl, crushed out of shape and in very bad condition; (4) clay pot XXXV, TO. 476; (6) LXXXV, broken; (7), (8), (9), II, red clay; (10) copper staff head (?) TO. 358; on the spike were clear traces of the wooden stick into which it had been fixed.

C. 78. Middle Period. Grave completely ruined, only part of the skull left and no other bones, and pots II, light drab clay; LX, two examples, both of drab clay, ht. 0·20 m. and 0·22 m. respectively; LXXIII, red clay, ht. 0·105 m.; and a clay spindle-whorl.

C. 79. Late. Not a grave at all, but a completely denuded area where were the wrecks of a number of graves; there were seven skulls and a few other bones scattered about in confusion, and with

these a few pots; II, four examples; LIX, drab clay, ht. 0·22 m.; LXVII, four examples, red clay; and many undistinguishable fragments.

C. 80. Middle Period (early). The body, which was much decayed, the skull being recognized only with difficulty, lay crouched up on its right side, the head west. The objects (9) to (15) lay rather apart and do not necessarily belong to the burial, but no other bones were found in connexion with them, so they are registered as part of C. 80.

(1) Copper bowl, distorted and decayed; (2) rough stone hammer, length 0·105 m.; (3) IV,

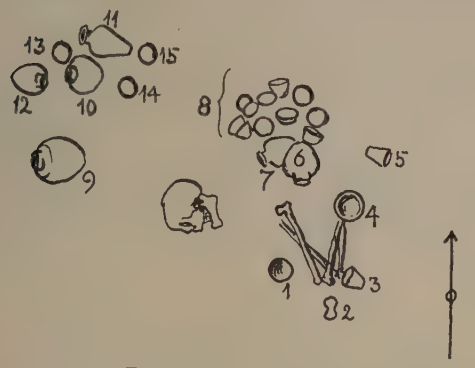


FIG. 64. GRAVE 80.

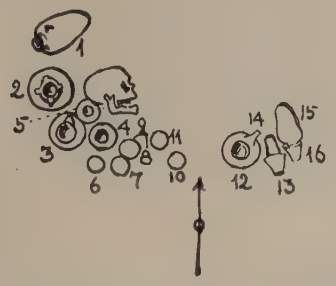


FIG. 65. GRAVE 82

FIG. 66. GRAVE 83.

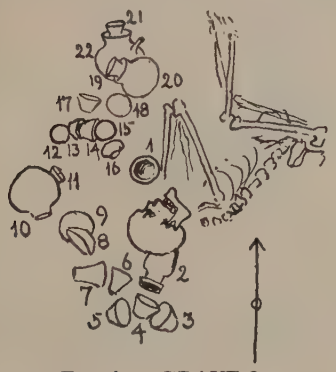


FIG. 67. GRAVE 84.

pottery, ht. 0·11 m.; (4) bowl of white marble, VIII, TO. 344; (5) V, drab clay; (6) LXXVI, light red clay, broken; (7) LVII, TO. 462; (8) II, a collection of such cups piled in and round one another, mostly broken; with them was found a small lump of iron oxide; (9) XXII, TO. 480; (10) LX, reddish drab clay, ht. 0·195 m.; (11) XXIII, reddish drab clay, ht. 0·17 m.; (12) LX, TO. 482; (13), (14), (15), II, reddish drab clay.

C. 81. Middle Period. Two skulls, no other bones; a confused grave, but all the objects seemed to belong to one skull (B).

(1) Bowl of white marble, XII, TO. 342; (2) small pot of white limestone, TO. 341; (3) some rough lumps of lime; (4) LX, ht. 0·21 m.; (5) LX, light drab clay, ht. 0·24 m.; (6) XLV, red clay, broken.

C. 82. Late. Of the body only the skull remained; the objects lay at the back of this and behind where the pelvis should have been.

(1) XL, light drab clay, ht. 0·49 m.; (2) XCIII, TO. 486; (3), (4), (5), LX, one of drab, two of red clay, ht. 0·19 m.; (6) IV, drab clay; (7)–(11) II; (12) LXXVIII, greenish drab clay, ht. 0·22 m.; (13) IV, drab clay; (14) XXIX, TO. 471; (15) XXIX, similar but broken; (16) II, inverted over (15), which lay on its side.

C. 83. Early. Of the body only the skull remained, in good condition (preserved).

(1) Oblong white stone bowl, TO. 339; (2) LX; (3) LX (?), top all gone; (4) II, inverted over; (5) LX, broken; (6) IV, ht. 0·125 m.; (7) LVIII, red clay, ht. 0·20 m.; (8) IV, ht. 0·125 m.; (9) XLVI, light reddish drab clay, ht. 0·10 m.; (10) copper axe, TO. 357.

C. 84. Late. The body, fairly well preserved, lay crouched up on its left side, the head south-west.

(1) Bowl of white stone, TO. 346; (2) XXXIII, TO. 477; (3)–(7) IV; (8), (9), II; (10) LIX, drab clay, ht. 0·19 m.; broken; (11) IV, drab clay, ht. 0·125 m.; (12) IV, red, ht. 0·125 m.; (13)–(18) I, red clay, mostly broken; (19) IV, red clay, set in the mouth of (20), LXI, drab clay, ht. 0·25 m., broken; (21) IV, drab clay, set in the mouth of (22), LXXXIV, drab clay, ht. 0·24 m., rim broken; also a very rough white pebble rubber.

C. 85. Middle Period. Of the body only a few traces of bone, apparently from the skull, found below no. (14).

(1) II, broken, set in the mouth of (2), LXI, very light greenish drab clay, ht. 0·24 m.; (3) II, red clay, with pot-mark on side, set in the mouth of (4), LXXIX, red clay, ht. 0·20 m.; (5) LXI, light greenish drab clay, ht. 0·23 m.; (6) LXI, similar, ht. 0·245 m.; with this was a shell containing green eye-paint, TO. 438; (7) LX, light drab clay, ht. 0·20 m.; (8) LXI, reddish drab clay, ht. 0·225 m.; (9) LXI, reddish clay, ht. 0·255 m.; (10), (11), (12), (13), LX, red, light drab, and reddish clay, hts. 0·20 m., 0·20 m., 0·24 m.; (14) IV, red clay, ht. 0·135 m.; (15) II, red clay.

C. 86. Middle Period. Remains of two very much plundered graves; two skulls, and objects with each, but attribution of some doubtful, especially of No. (4).

(1) Bowl of white marble, XII, TO. 340; (2) pottery, LX, red clay, broken; (3) LVIII, red clay,

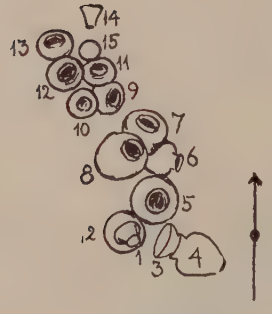


FIG. 68. GRAVE 85.

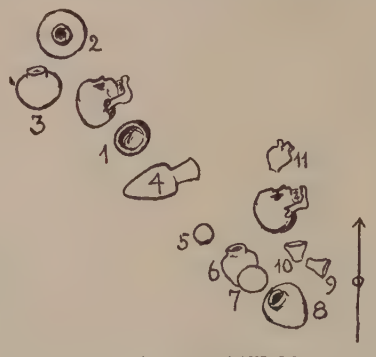


FIG. 69. GRAVE 86.

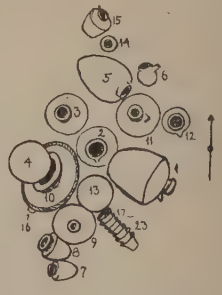


FIG. 70. GRAVE 88.

ht. 0·22 m., broken; (4) XXXIV, drab clay, ht. 0·28 m., broken; (5) II, red clay, ht. 0·115 m.; (6) LXI, red clay, ht. 0·22 m.; (7) IV, ht. 0·125 m.; (8) LXI, light drab clay, broken; (9), (10), IV, drab clay, ht. 0·115 m.; (11) XCIV, TO. 504.

C. 87. Middle Period. Of the body, only a few stains from the bones.

(1) LX, greenish ware, ht. 0·17 m., base broken off; (2) LXXVIII, greenish clay, ht. 0·22 m.; (3) XXVIII, TO. 484; (4), (5), XXVIII, greenish drab clay, one ht. 0·165 m., one broken; (6) LXXXII, all broken; (7) II, red clay, broken; (8) XXV, broken.

C. 88. Early. The deepest-lying grave excavated in the cemetery; it lay 0·80 m. below the bottom of the larnax C. 4, which was immediately above it, and 0·50 m. below the level of graves C. 8 and C. 79.

No traces of any body were found.

The pots had been piled up in the grave, one on the top of another, so that the removal of those which first came to light revealed others for the first time; but all the vessels seem to belong to the same interment.

(1) LXXXI, yellowish drab clay, ht. 0·40 m., with rope moulding round shoulder; (2) LXXV, TO. 506; (3) LXXV, similar, but with rope moulding round shoulder; (4) XIV, TO. 493; (5) LXXXI, greenish drab clay, broken; (6) LXXXVII, TO. 511; (7) LXI, greenish drab clay, ht. 0·18 m.; inverted over the mouth of this was a copper bowl which had decayed entirely away; (8) XXXVI, TO. 485; (9) large jar with rope moulding round shoulder, too fragmentary to type, diameter 0·32 m.; (10) XXVII, large, with rope moulding round shoulder, broken; (11) XXVII, TO. 510; (12) LXXVIII, reddish clay, broken; (13) fragments of a spouted vase; (14) XLVII, red clay; (15) LXXXVII, TO. 508; (16) XXXV, TO. 478.

C. 89. Middle Period. Remains of two bodies; of one, only the skull is left, and to this belong objects (1) to (3); of the second the skull and arm-bones survive, and the body had lain on its right side, head south-east; to it appear to belong the remaining objects.

(1) LXXIV, rough reddish clay, ht. 0·105 m.; (2) LIX, rough drab clay, ht. 0·11 m.; (3) II, red clay; (4) XXXI, TO. 474; (5) LXXIX, greenish drab clay, ht. 0·105 m.; (6) X, reddish clay, ht. 0·10 m.; (7) LXXII, TO. 467; (8) LXVII, rough red clay; (9) LXVIII, red clay; (10) LXIV, rough red clay.

C. 90. Prehistoric. The grave lay nearer to the present surface than almost any other in the cemetery. The body was closely contracted, lying on its right side, the head to the south-east. A little way from the head lay (1) a globular pot of light clay with a band of incised hatching round the top of the shoulder; (2) LXXX, a small clumsily-made spouted jug of light red clay with a double band of reddish paint round it below the shoulder, TO. 522; and immediately against the skull two plain broken pots type LIII.

The pots (1) and (2) are certainly of the prehistoric period, but it is not absolutely certain that they belong to the grave.

C. 91. Middle Period. The body, which was very badly decayed and with the skull missing, lay crouched up on its left side with the head west-north-west.

(1) Copper dagger, TO. 361; it had been in a wooden sheath fastened with copper nails, and its position showed that it had been worn in a belt or slung from a baldric; (2)–(6) II,

FIG. 71. GRAVE 91.

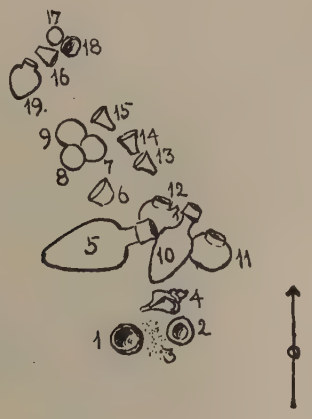


FIG. 72. GRAVE 92.

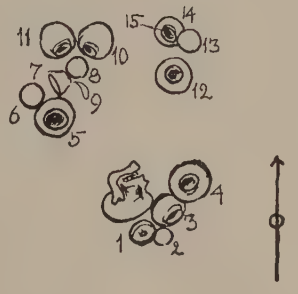


FIG. 73. GRAVE 94.

pottery, reddish drab or drab clay; (7)–(10) IV, greenish drab clay; (11) LIX, greenish drab clay, ht. 0·24; (12), (13), LXI, greenish drab clay, ht. 0·19 m., and one broken; each of the last three had a cup, IV, inverted over it; with these, a spoon-shaped flint implement and a lump of bitumen shaped as a spindle-whorl.

C. 92. Middle Period. No trace of any body.

(1) Copper bowl, TO. 354; (2) bowl of white limestone, VIII, TO. 350; (3) a set of about 130 beads of lapis lazuli and some of silver, TO. 409; (4) a large shell cut for use as a ladle; (5) XXXIII, reddish clay ht. 0·115 m.; (6)–(9) III; (10) XXXIII, creamy drab clay, ht. 0·30 m.; (11) LX, light greenish drab clay, ht. 0·16 m.; (12) LXXIX, light drab clay, ht. 0·18 m.; (13)–(17) IV; (18) II; (19) LXXVI, a variant in that it has no true base-ring, but the bottom has been pinched out into three lobes which nearly join up into a circle and make a ring; light drab clay, ht. 0·18 m.

C. 93. Middle Period. Two skulls close together at the same level, no other bones; the vases could not be distinguished into separate burial groups.

(1) Large vase, possibly L, but too fragmentary to type; (2)–(5) II; (6) LXI, greenish drab clay, ht. 0·20 m.; (7) XLIV, red clay, ht. 0·09 m.; (8), (9), LVIII, of greenish drab and of drab clay, hts. 0·19 m. and 0·21 m. respectively; (10) XXXIV, drab clay, ht. 0·13 m.

C. 94. Early. Of the body only the skull remains.

(1) XLVI, TO. 458; (2) XII, drab clay, ht. 0·105 m.; (3), (4), (5), LX, all of light drab clay, hts. 0·18 m., 0·20 m., 0·19 m.; (6), (7), (8), III; (9) clay sickle, broken; (10) LV (?), red clay, broken; (11) LX, drab clay, broken; (12) LX, greenish drab clay, ht. 0·19 m.; (13), (14), II; (15) saucer of green stone, XI, TO. 351.

IV. CATALOGUE OF THE PRINCIPAL OBJECTS FROM THE CEMETERY OF AL-'UBAID

NOTES. Capital letters in brackets show to which Museum the object in question was allotted. (L.) = London, (P.) = Philadelphia, (B.) = Baghdad.

In the case of clay vessels Roman numerals refer to the types. The letter P with a small Roman numeral refers to the prehistoric types, Pl. L–LII, large Roman numerals to the First Dynasty types, Pl. LV–LX.

In the case of stone vessels Roman numerals refer to the type sheets on Pl. LXI, LXII. Not all the types there illustrated are necessarily of First Dynasty date.

TO. 1. Copper celt, l. 0·15 m., width 0·04–0·05 m. Found at depth 0·40 m., with a copper rod and fragments of pottery 25·00 m. east of trench. Pl. XLVI, 2. (P.)

TO. 2. Copper dagger, of type found in Syria and Cyprus, *cf.* Petrie, *Tools and Weapons*, Pl. XXXIII. 10, for an Egyptian parallel of Hyksos date, and also Mackay, *Report on the 'A' Cemetery at Kish*, Pl. XVIII, Fig. 12, l. 0·23 m.; three studs in haft and a fourth stud found loose which must have been in the (wooden) handle. Grave 28. Pl. XLVI, 2. (L.)

TO. 3. Copper adze, l. 0·15 m., width 0·05 m., found with TO. 1. (B.)

TO. 4. Copper wire ring (? ear-ring) found with beads below the skull in Grave 27, diam. *c.* 0·01 m.

TO. 4 A. Copper pin, broken and point missing, total l. 0·17 m., the top bent round, the shaft widened and flattened below the bend, average width 0·008 m., widest part 0·015 m. Found on shoulder of body, lying across the breastbone. Grave 27. (P.)

TO. 5. Copper bowl, nearly hemispherical, with flattened base and beginnings of base-ring visible inside and outside, diam. 0·14 m., ht. 0·072 m. Grave 37. (B.)

TO. 6. Copper bowl, probably once hemispherical but now crushed and distorted, diam. 0·11 m., ht. 0·055 m. Grave 27. (L.)

TO. 7. Copper bowl or cauldron, with nearly vertical sides and out-turned rim, ht. 0·24 m., diam. of body 0·25 m., diam. of rim 0·33 m. Grave 11. Pl. XLVIII. (L.)

TO. 8. Beads, 10 lapis lentoids, 1 lapis pendant, heart-shaped, 9 carnelian rings and bugles, all found together at neck of body, but order not preserved. Grave 27. (B.) For the pendant see Pl. XLVIII.

TO. 9. Lapis lazuli amulet in form of animal (unidentified), ht. 0·017 m. Found on surface of cemetery. Pl. XLVIII. (L.)

TO. 10. Beads, 13 lapis lentoids and rings with two carnelian double conoids and one large shell bead imitating a cowry. Found round neck of body. Grave 35. (L.)

TO. 11. Calcite vase, XXXIX, intact, ht. 0·10 m., rim diam. 0·07 m. Grave 27. (12.) Pl. XLVI. (P.)

TO. 12. Vase of green stone (basic diorite) intact, XXXVII. Ht. 0·11 m., rim diam. 0·12 m. Grave 1. (15.) Pl. XLVI. (B.)

TO. 13. Bowl of grey schist, XXIII, ht. 0·07 m., diam. 0·195 m., rim chipped. Grave 1. (16.) (B.)

TO. 14. Bowl of green stone (basic diorite) practically hemispherical, VIII, ht. 0·065 m., diam. 0·115 m.; intact. Grave 8. (1.) Pl. XLVI. (L.)

TO. 15. Bowl of fine white limestone, XII, base slightly flattened, sides well smoothed and rim decorated with notching, ht. 0·04 m., diam. 0·103 m. Loose in soil of cemetery. Pl. XLVI. (P.)

TO. 16. Bowl of fine white limestone, X, base irregularly flattened, broken and mended, ht. 0·06 m., diam. 0·175 m. Found with TO. 15. (B.)

TO. 17. Bowl of green stone (basic diorite), XV, ht. 0·075 m., diam. 0·19 m., base diam. 0·06 m.; nearly half of rim missing. From Grave 1. (1.) (B.)

TO. 18. Bowl of fine white limestone, XXII, broken and mended, ht. 0·13 m., diam. 0·295 m., base diam. 0·19 m. Grave 1. (2.) (L.)

TO. 19. Stone bowl, VII, fragmentary, ht. 0·11 m. Grave 1. (4.) (B.)

TO. 20. Bowl of mottled green stone, VII, with rudimentary base, broken and mended, ht. 0·105 m., diam. 0·22 m. By Grave 11. (L.)

TO. 21. Flint hoe, l. 0·175 m. Cf. Pl. XLVI. (P.)

TO. 22–32. Similar. (L.) and (P.). For TO. 24 see Pl. XLVI; for TO. 25–8, 30–2 see Pl. XLVII.

TO. 33. Limestone net-sinker or loom weight (?) notched in centre. Grave 23. 0·065 m. × 0·072 m. Pl. XLVII. (L.)

TO 35, 36, 37. Polished stone celts, found in soil, the first two near Grave 9. Pl. XLVII. (P.) and (L.).

TO. 38. Model in greenish clay of a socketted copper axe, l. 0·11 m., extreme width 0·055 m. Found in surface soil, but from the character of the clay belonging to the prehistoric period. Pl. XLVI. (L.)

TO. 39. Model axe in greenish clay, similar to TO. 38 but with the blade broken away. From surface soil.

TO. 40. Model in painted pottery (black on greenish clay) of a flint hoe; l. 0·11 m., width 0·61 m. Found with a genuine flint of the same type (TO. 25) next to it in Grave 21. (3.) Pl. XLVI. (P.)

TO. 41. Model in painted clay (black on greenish drab) of an unknown tool. The curved handle had clearly had something bound round it; the design on the 'blade' resembles string-work, and there are two holes driven through the blade. L. 0·30 m., width 0·08 m. Broken in half and the two pieces found widely apart in the surface soil. Pl. XLVI. (L.)

TO 42. Beads (13) of black obsidian, bugle shape, found together by the pots in Grave 1. (B.)

TO. 42 A. Beads (56), carnelian rings, found by pots in Grave 1. Not from same string as TO. 42. (L.)

TO. 43. Clay model 'nails'. Pl. XLVI.

TO. 45. Vase, drab clay, XXVII, incised cord pattern below neck, rim and handle broken, ht. 0·267 m. Grave 1. (7).

TO. 46. Vase, red clay, drab surface, XXVII, incised cord pattern below neck, knob handle on shoulder, ht. 0·285 m. Grave 1. (8.)

TO. 47. Vase, drab clay, XXVII, ht. 0·290 m. Grave 1. (9.)

TO. 48. Vase, red clay, hand-made, XCI, spout broken, ht. 0·236 m. Grave 1. (10.)

TO. 49. Vase, red clay, LVI, neck broken, ht. 0·250 m. Grave 1. (11.)

TO. 50. Vase, red-brown clay, LXXIX, ht. 0·228 m. Grave 4.

TO. 51. Vase, light red clay, LX, neck broken, ht. 0·174 m. Grave 4.

TO. 52. Vase, light red clay, LXXXI, neck broken off, ht. to top of spout 0·255 m. Grave 4.

TO. 53. Vase, light red clay, LVIII, broken, ht. 0·17 m. Grave 4.

TO. 54. Vase, drab clay, LX, neck broken, ht. 0·234 m. Grave 4.

TO. 55. Vase, red clay, LX, neck broken, ht. 0·23 m. Grave 4.

TO. 56. Vase, red clay, III, unsymmetrical, ht. 0·080 m. Grave 4.

TO. 57. Vase, red clay, III, ht. 0·08 m. Grave 4.

TO. 58. Vase, greenish grey clay, IV, unsymmetrical, ht. 0·112 m. Grave 4.

TO. 59. Vase, greenish grey clay, IV, ht. 0·14 m. Grave 4.

TO. 60. Vase, green clay, V, broken, ht. 0·155 m. Grave 4.

TO. 61. Vase, red clay, IV, rough and lop-sided, ht. 0·13 m. Grave 4.

TO. 62. Vase, red clay, IV, ht. 0·12 m. Grave 4.

TO. 63. Vase, light red clay, IV, broken, ht. 0·14 m. Grave 4.

TO. 64. Vase, light green clay, IV, squat variant, rim diam. 0·115 m., broken. Grave 4.

TO. 65. Vase, pinkish drab clay, X, ht. 0·11 m. Grave 6. (1.)

TO. 66. Vase, red clay, LX, rim missing, present ht. 0·18 m. Grave 6.

TO. 67. Vase, light creamy drab clay, LXI, rim chipped, ht. 0·175 m. Grave 6. (3.)

TO. 68. Vase, light red clay, XLV, ht. 0·075 m. Grave 7. (3.)

TO. 69. Vase, light drab clay flared to red in patches, XLIV, half of mouth missing, ht. 0·085 m. Grave 7. (4.)

TO. 70. Vase, red clay, III, very roughly made, ht. 0·07 m. Grave 7. (8.)

TO. 71. Vase, light pinkish drab clay, VII, roughly made, ht. 0·14 m. Grave 10. (15.)

TO. 72. Vase, red clay, XCII, ht. 0·075 m. Grave 10. (13.)

TO. 73. Vase, drab clay with creamy surface, XXVII, on shoulder, incised herring-bone pattern and small lug, half rim missing, ht. 0·245 m. Grave 7. (6.)

TO. 74. Vase, green clay, LXI, rim bent out to form a spout and the pot thereby distorted, ht. 0·19 m. The ware is very much that of the prehistoric pottery. Grave 7. (2.)

TO. 75. Vase, red clay, XXIV, rim missing, ht. 0·27 m. Grave 7. (1.)

TO. 76. Vase, light drab clay, XXI, ht. 0·11 m. This type was clearly intended to have a lid. Grave 9. (3.)

TO. 77. Vase, light greenish drab clay, LXXXI, band of diagonal incisions round shoulder, rim chipped, ht. 0·285 m. Grave 10. (4.)

TO. 78. Vase, red clay, creamy pink surface, LXXXI, ht. 0·265 m. Grave 10.

TO. 79. Vase, light greenish clay, XXXVIII, very fine ware and thin, ht. 0·11 m. Grave 12.

TO. 80. Vase, coarse greenish clay, hand-made, XX, ht. 0·08 m., diam. 0·21 m. A raised ridge runs

round the inside of the base close to the vertical walls; it looks like a bread-baking bowl. Grave 12.

TO. 81–5. Similar to TO. 80, all from Grave 12, except TO. 85, which is from Grave 13; only the last unbroken.

TO. 86. Vase, light greenish clay, LXI, rim broken, ht. 0·195 m. Near Grave 15.

TO. 87. Vase, fine brownish drab clay, XIV, ht. 0·025 m. Grave 15.

TO. 88. Vase, drab clay, III, ht. 0·08 m. Grave 15 (B). (2.)

TO. 89. Vase, light drab clay, XLI, ht. 0·16. Grave 17.

TO. 90. Vase, light drab clay, LXII, ht. 0·17 m. Grave 20. (1.)

TO. 91. Vase, light drab clay, XXIV, ht. 0·255 m. Grave 35. (16.)

TO. 92. Vase, light drab clay, LXXIX, unusually long spout, ht. 0·26 m. Grave 20. (3.)

TO. 93. Vase, light greenish clay, LXI, rim broken, ht. 0·165 m. Grave 20. (10.)

TO. 94. Vase, light drab clay, VIII, clumsily made, ht. 0·15 m. Grave 20. (11.)

TO. 95. Vase, light drab clay, LXXXII, ht. *c.* 0·20 m. Grave 20. (13.)

TO. 96. Vase, red clay, LXV, roughly made, ht. 0·075 m. Grave 20. (15.)

TO. 97. Vase, red clay, LXXVIII, ht. 0·225 m. Grave 20. (19.)

TO. 98. Vase, light red clay, hand-made and very rough, a straight-sided cylindrical pot, ht. 0·025 m., diam. 0·04 m. Grave 20. (10.)

TO. 99. Vase, light drab clay, LXV, ht. 0·08 m. Grave 22. (2.)

TO. 100. Vase, brownish clay, XX, broken, ht. 0·075 m. Grave 15. (4.)

TO. 101. Stone bowl, VIII, coarse white limestone, chipped, ht. 0·05 m., diam. 0·195 m. Grave 7 B. (L.)

TO. 102. Stone bowl, XVII, of white limestone veined with pink, broken and warped out of shape, ht. 0·06 m., diam. 0·12 m. Grave 7. (5.) (P.)

TO. 103. Stone bowl, IX, of fairly fine-grained white limestone, ht. 0·065 m., diam. 0·13 m. Grave 10. (9.) (B.)

TO. 104. Stone bowl, indeterminate type, roughly cut and unfinished, of soft chalky limestone, ht. *c.* 0·045 m., diam. 0·135 m. Grave 23. (8.)

TO. 105. Stone bowl, VIII, of fine white limestone, broken and imperfect, ht. 0·054 m., diam. 0·11 m. Grave 22. (1.) (B.)

TO. 106. Vase, pink clay, IV, ht. 0·125 m. Grave 23. (1.)

TO. 107. Vase, red clay, IV, ht. 0·12 m. Grave 23. (6.)

TO. 108. Vase, greenish drab clay, VI, ht. 0·145 m. Grave 23. (15.)

TO. 109. Vase, pinkish drab clay, LVIII, ht. 0·205 m. Grave 23. (5.)

TO. 110. Vase, pinkish drab clay, XXV, neck broken away, ht. *c.* 0·26 m. Grave 23. (2.)

TO. 111. Vase, pinkish drab clay, LX, neck broken, ht. 0·26 m. Grave 23. (11.)

TO. 112. Vase, red clay, III, ht. 0·08 m. Grave 23. (13.)

TO. 113. Vase, light brown clay, XX, broken, ht. 0·08 m., diam. 0·225 m. Near Grave 24.

TO. 114. Vase, red clay, drab surface, LX, ht. 0·23 m. Grave 27. (8.)

TO. 115. Vase, reddish brown clay, V, ht. 0·165 m. Grave 29.

TO. 116. Vase, greenish drab clay, LX, warped out of shape, ht. 0·19 m. Grave 29. (8.)

TO. 117. Vase, red clay, IV, ht. 0·12 m. Grave 29. (1.)

TO. 118. Vase, pinkish drab clay, IV, ht. 0·12 m. Grave 29. (6.)

TO. 119. Vase, drab clay, LII, ht. 0·125 m. Grave 29. (5.)

TO. 120. Vase, reddish drab clay, XLVIII, ht. 0·103 m. Grave 29. (9.)

TO. 121. Vase, reddish drab clay, II, ht. 0·06 m. Grave 35. (6.)

TO. 122. Vase, red clay, LXXIII, ht. 0·115 m. Grave 35. (9.)

TO. 123. Vase, red clay, LXVII, ht. 0·077 m. Grave 35. (10.)

TO. 124. Vase, red clay, II, ht. 0·074 m. Grave 35. (12.)

TO. 125. Vase, pinkish drab clay, LXXIII, ht. 0·132 m. On the shoulder there are incised three signs (Fig. 74), two of which are recognizable Sumerian signs, BI and DAM. The importance of this is obvious as confirming the fact that the graves are those of a Sumerian people. Similarities of pottery forms sufficed to show that the cemetery was in part at least contemporary with A-anni-padda's temple (v. p. 178), but it might have been argued that whereas the building was the work of a Sumerian overlord, the graves might be those of a predominantly Semitic population: this pot with its Sumerian signs incised in the clay before firing, found in a grave whose style and contents

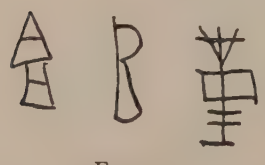


FIG. 74.

are absolutely normal, proves that Sumerian was the language of the common people and supports the evidence of the skeletons (see ch. x). Grave 20. (2.) Pl. LIV. (L.)

TO. 126. Vase, red clay, XXXIII, neck broken, ht. 0·268 m. Grave 35. (17.)
TO. 127. Vase, drab clay, IX, ht. 0·145 m. Grave 35. (18.)
TO. 128. Vase, light red clay, drab surface, LXXXII, broken at neck, ht. 0·21 m. Grave 35. (19.)
TO. 129. Vase, light red clay, LXXXII, ht. 0·205 m. Grave 35. (11.)
TO. 130. Vase, light yellow surface, XIV, ht. 0·072 m. Grave 35. (21.)
TO. 131. Vase, red clay, LVIII (?), neck missing, ht. 0·185 m. Grave 35. (8.)
TO. 132. Vase, red clay, light yellow surface, VIII, ht. 0·14 m. Grave 36.
TO. 133. Vase, red clay, light yellow surface, II, ht. 0·07 m. Grave 36.
TO. 134. Vase, red clay, II, ht. 0·078 m. Grave 36.
TO. 135. Vase, red clay, II, ht. 0·08 m. Grave 36.
TO. 136. Vase, reddish drab clay, (?) broken and spout missing, ht. 0·24 m. Grave 37. (3.)
TO. 137. Vase, light greyish drab clay, LX, ht. 0·228 m. Grave 37. (12.)
TO. 138. Vase, light greenish grey clay, LX, ht. 0·188 m. Grave 37. (19.)
TO. 139. Vase, red clay, XVII, ht. 0·06 m. Grave 38. (2.)
TO. 140. Vase, reddish drab clay, LX, ht. 0·20 m. Grave 39. (2.)
TO. 141. Vase, greenish clay, LXXIX, ht. 0·228 m. Grave 37. (6.)
TO. 142. Vase, light red clay, drab surface, LX, ht. 0·215 m. Grave 37. (11.)
TO. 143. Vase, drab clay, XXV, on the body an incised mark. Ht. 0·378 m. Grave 37. (4.)
TO. 144. Vase, light red clay, yellow surface, VI, ht. 0·18 m. In soil near Grave 40.
TO. 145. Vase, light red clay, drab surface, XXIII, broken, ht. 0·40 m. Grave 40. (24.)
TO. 146. Vase, light red clay, greenish surface, XXXIII, ht. 0·317 m. Grave 40. (8.)
TO. 147. Vase, red clay, drab surface, XXXIII, ht. 0·303 m. Grave 40. (27.)
TO. 148–57. Vases, red clay, II, hts. 0·70–0·80 m. Grave 40.
TO. 158. Vase, light red clay, drab surface, LVIII, ht. 0·15 m. Grave 40. (28.)
TO. 161. Vase, drab clay, LX, ht. 0·215 m. Grave 40. (29.)
TO. 162. Vase, drab clay, LX, ht. 0·216 m. Grave 40. (30.)
TO. 163. Vase, drab clay, LXI, ht. 0·163 m. Grave 40. (31.)
TO. 164. Vase, drab clay, LX, ht. 0·189 m. Grave 40. (1.)
TO. 165. Vase, red clay, LX, ht. 0·21 m. Grave 41. (1.)
TO. 166. Vase, drab clay, LX, ht. 0·194 m. Grave 41. (2.)
TO. 167. Vase, red clay, light drab surface, XIV, diam. 0·139 m. Grave 41. (8.)
TO. 168. Vase, red clay, XLII, ht. 0·172 m. Grave 44. (1.)
TO. 169. Vase, red clay, LXIII, incised low down on the body with the mark . Ht. 0·116 m. Grave 44. (3.)
TO. 170. Vase, red clay, hand-made, XI, but rough and unsymmetrical, ht. *c.* 0·10 m. Grave 45. (1.)
TO. 171. Vase, greenish clay, hand-made, XI, rough, ht. *c.* 0·10 m. Grave 45. (2.)
TO. 172. Vase, drab clay, hand-made, XI, rough, ht. *c.* 0·10 m. Grave 45. (3.)
TO. 174. Vase, red clay, brown surface, XLVI, broken, rim diam. 0·40 m. Loose in soil.
TO. 175. Vase, red clay, XLIII, ht. 0·072 m. Loose in soil.
TO. 176–86. Vases of red or drab clay, II, ht. from 0·65 m.–0·85 m., all found loose in soil, not in grave groups.
TO. 187. Vase, red clay, I, ht. *c.* 0·055 m. Loose in soil.
TO. 188. Vase, red clay, VI (?), unsymmetrical, ht. 0·125 m. Loose in soil.
TO. 189. Vase, drab clay, VI, rough, ht. 0·12 m. Loose in soil.
TO. 190. Vase, red-drab clay, IV, rough, ht. *c.* 0·115 m. Loose in soil.
TO. 191. Vase, brown-red clay, IV, rough, ht. 0·105 m. Loose in soil.
TO. 192. Vase, red clay, XLVIII, ht. 0·105 m. Loose in soil.
TO. 193. Vase, red clay, light surface, LXXX, neck broken, ht. to base of neck 0·11 m. Loose in soil.
TO. 194. Vase, red clay, LXVI, ht. 0·12 m. Loose in soil.
TO. 195. Vase, red clay, LXXIII, ht. 0·113 m. Loose in soil.
TO. 196. Vase, red clay, LV, ht. 0·113 m. Loose in soil.
TO. 197. Vase, red clay, LXXIII, ht. 0·104 m. Loose in soil.
TO. 198. Vase, drab clay, LVIII, ht. 0·172 m. Loose in soil.
TO. 199. Vase, red-drab clay, LVIII, ht. 0·205 m. Loose in soil.
TO. 200. Vase, red clay, LXII, ht. 0·155 m. Loose in soil.
TO. 201. Vase, red clay, XXXIV, ht. 0·272 m. Loose in soil.

TO. 202. Vase, red clay, drab surface, XXIV, ht. 0·305 m. Loose in soil.
TO. 203. Vase, light red clay, yellow surface, XXXIII, ht. 0·245 m. Loose in soil.
TO. 205. Vase, red-drab clay, ht. 0·26 m. Loose in soil.
TO. 206. Vase, red clay, drab surface, L, ht. 0·205 m. Loose in soil.
TO. 207. Vase, red clay, XXXVII, ht. 0·092 m. Loose in soil.
TO. 208. Vase, dark grey clay, XXXVII, with a band of impressed dot decoration round the body; broken; ht. to neck, 0·08 m. Loose in soil.
TO. 209. Vase, red-drab clay, LXXXVIII, ht. 0·072 m. Found in the trench across the hut settlement site, but possibly belonging to the later period, as it was in the upper and disturbed soil.
TO. 210. Vase, green clay, L, but warped out of shape, ht. 0·11 m. From the trench across the hut settlement site, and judging from the character of the clay belonging to the early period though probably to its close; being wheel-made it should mark the transition phase.
TO. 211. Vase, light drab clay, XIII, ht. 0·115 m. Grave 9. (5.)
TO. 212. Vase, drab clay, XC, ht. 0·48 m. Grave 10. (2.)
TO. 213. Vase, red clay, VII, unsymmetrical, ht. 0·145 m. Grave 10. (8.)
TO. 214. Vase, red clay, VII, ht. 0·145 m. Grave 10. (9.)
TO. 215. Vase, red clay, XXX, ht. 0·168 m. Grave 10. (10.)
TO. 216. Vase, red clay, VII, ht. 0·14 m. Grave 10. (11.)
TO. 217. Vase, red clay, LXIII, broken, ht. 0·085 m. Grave 10. (14.)
TO. 218. Vase, red clay, II, rough, ht. 0·072 m. Grave 10. (19.)
TO. 226. Vase, red clay, LXXIII, ht. 0·10 m. Grave 10. (22.)
TO. 227. Vase, red-drab clay, VI, ht. 0·16 m. Grave 13.
TO. 228. Vase, red-drab clay, XVIII, with 3 broad incised wavy lines running round below rim, broken, ht. 0·125 m. Grave 15 B. (1.)
TO. 229. Vase, red-drab clay, VIII, broken, ht. 0·16 m. Grave 18.
TO. 230. Vase, red clay, IV, ht. 0·103 m. Grave 20. (4.)
TO. 232. Vase, red clay, LX, broken, ht. 0·183 m. Grave 21. (1.)
TO. 233. Vase, red clay, LXVIII, ht. 0·085 m. Grave 21. (4.)
TO. 234. Vase, red clay, drab surface, LX, ht. 0·195 m. Grave 22. (6.)
TO. 235. Vase, red clay, IV, ht. 0·12 m. Grave 22.
TO. 236. Vase, drab clay, LX, ht. 0·185 m. Grave 23. (3.)
TO. 237. Vase, red-drab clay, II, ht. 0·065 m. Grave 27.
TO. 238. Vase, red clay, II, rough, ht. 0·065 m. Grave 27. (4.)
TO. 239. Vase, red clay, LXI, ht. 0·22 m. Grave 27. (6.)
TO. 240. Vase, red-drab clay, LVIII, ht. 0·218 m. Grave 36. (44.)
TO. 241. Vase, light pinkish clay, II, ht. 0·07 m. Grave 36.
TO. 242. Vase, drab clay, V, rough, ht. 0·175 m. Grave 40. (15.)
TO. 243. Vase, red clay, light drab surface, V, rough, ht. 0·175 m. Grave 40. (22.)
TO. 244. Vase, red-drab clay, IV, unsymmetrical, ht. *c.* 0·12 m. Grave 40.
TO. 245. Vase, red clay, II, ht. 0·07 m. Grave 40.
TO. 246. Vase, red clay, XVII, with notched rope pattern round rim, broken; diam. 0·22 m. Grave 38. (1.)
TO. 247. Vase, red-drab clay, LXXVI, broken, ht. 0·25 m. Grave 35. (20.)
TO. 248. Vase, greenish clay, LIII, broken. Grave 28.
TO. 249. Vase, red clay, XC, broken, ht. (?). Grave 10. (1.)
TO. 250. Vase, red clay, XC, broken, rim diam. 0·07 m. Grave 10. (3.)
TO. 251. Clay jar cover, circular, painted, with a Maltese cross in black on a white ground. Diam. 0·068 m. Grave 9. (14.) (P.)
TO. 252. Vase of painted ware, drab clay, P. xii, with bands of decoration round neck and body. Hand-turned, ht. 0·068 m. Grave 8. (3.)
TO. 253. Vase, light drab clay, P. x, hand-turned, painted with bands of decoration in black round the shoulder; ht. 0·127 m. Pl. XLIX. Grave 9. (1.) (B.)
TO. 254. Vase, greenish clay, P. vii, hand-turned, with bands of decoration in black round the shoulder; ht. 0·104 m. Pl. XLIX. From the trench across the hut settlement. (P.)
TO. 256. Vase, greenish clay, P. xii, hand-turned, with black band round neck and string pendants; ht. (neck missing) 0·128 m. Grave 9. (2.) (P.)
TO. 257. Vase, drab clay, P. x, hand-turned, with black painted decoration like that of TO. 256. Half missing, ht. 0·06 m. Loose in soil.

TO. 258. Vase, drab clay, P. x, hand-turned, with traces of decoration in black paint at neck and shoulder. Near Grave 9.
TO. 280. Flint hoes (cf. TO. 21, &c.) from the surface of the cemetery. (B.)
TO. 281. Flint implement, l. 0·124 m. Surface find. Pl. XLVII. (B.)
TO. 282. Flint implement, l. 0·079 m., width 0·057 m. Surface find. Pl. XLVII. (B.)
TO. 283. Flint implement, roughly circular, diam. 0·06 m. Surface find. Pl. XLVII. (B.)
TO. 284. Flint lance- or arrow-head, triangular, but base broken off; unusually fine chipping. L. 0·038 m., width 0·02 m. Surface find. Pl. XLVII. (B.)
TO. 322. Clay model ' nails ' of the normal bent type. Surface finds.
TO. 323. Bowl of white marble, the rim decorated with notching, VIII, ht. 0·045 m., diam. 0·117 m. Grave 51. (7.) (B.)
TO. 324. Bowl of white marble, X, ht. 0·055 m., diam. 0·14 m. Grave 52. (4.)
TO. 325. Bowl of white limestone, XII, the inner surface discoloured and decayed; ht. 0·055 m., diam. 0·13 m. Grave 59. (B.)
TO. 326. Bowl of white limestone, VIII, broken and mended; ht. 0·04 m., diam. 0·09 m. Grave 52. (3.) (L.)
TO. 327. Bowl of dark greenish-grey stone, XIV, piece missing from rim; ht. 0·06 m., diam. 0·145 m. Grave 53. (1.) (P.)
TO. 328. Bowl of very fine white limestone, VIII, rim chipped; ht. 0·045 m., diam. 0·09 m. Grave 65. (L.)
TO. 329. Bowl of green stone (basic diorite), VII, with slight base; ht. 0·105 m., diam. 0·135 m. Grave 66. (B.)
TO. 330. Bowl of yellowish-white limestone, XXI, broken and chip missing from rim; ht. 0·05 m., diam. 0·12 m. Grave 66. (B.)
TO. 331. Bowl of dark mottled grey stone, X, with a depression worked in the rim making a sort of spout; broken, and a chip missing; ht. 0·057 m., diam. 0·06 m. Grave 66. (L.)
TO. 332. Bowl of dark grey steatite, XXI, with flat rim whereon a chevron pattern incised; ht. 0·033, diam. 0·085 m. Loose in surface soil. (L.)
TO. 333. Bowl of dark grey stone, XII, broken and much decayed through salt action; ht. 0·03 m., diam. 0·09 m. Grave 51. (3.) (B.)
TO. 334. Bowl of white limestone, XXII, ht. 0·06 m., diam. 0·145 m. Loose in surface soil. (B.)
TO. 335. Bowl of greenish white limestone, XXII, rim chipped; ht. 0·05 m., diam. 0·12 m. Loose in surface soil. (B.)
TO. 336. Bowl of fine-grained green stone (basic diorite), XXI, broken and imperfect; ht. 0·04 m., diam. 0·09 m. Loose in surface soil. (P.)
TO. 337. Funnel (?) or mace-head (?) of pinkish drab pebble; ht. 0·08 m., diam. 0·065 m. Surface find. The splaying out of the hole is unusual in a mace-head, but stone is an improbable material for a funnel, which is what the general shape suggests. Pl. XXXVII. (L.)
TO. 338. Mortar of white limestone, the outside rough, the inner surface, now much flaked, originally smooth and polished. Ht. 0·12, diam. 0·105 m.; inner measurements, depth 0·10 m., diam. 0·06 m. Surface find. (B.)
TO. 339. Bowl of poor-grade white limestone; flat-based and oval with the ends brought to a point on the outside; if these were only higher it would be like the clay models of belums. L. 0·16 m., width 0·105 m., ht. 0·065 m. Grave 83. (1.) (B.)
TO. 340. Bowl of fine-grained white limestone, XII, ht. 0·043 m., diam. 0·12 m. Grave 86. (1.) (B.)
TO. 341. Bowl of coarse white limestone, a miniature straight-sided pot very roughly made, perhaps simply cut down from a broken cylindrical vase; ht. 0·035 m., diam. 0·055. Grave 81. (2.) (B.)
TO. 342. Bowl of white marble, XII, broken but nearly complete; ht. 0·046 m., diam. 0·135 m. Grave 81. (1.) (P.)
TO. 343. Bowl of fine white limestone, XII, broken but nearly complete; ht. 0·064 m., diam. 0·16 m. Loose in surface soil. (B.)
TO. 344. Bowl of fine white limestone, VIII, with a shallow groove running round the outside of the rim; ht. 0·085 m., diam. 0·16 m. Grave 80. (4.) (P.)
TO. 345. Bowl of white marble, XXIII, ht. 0·085 m., diam. 0·20 m. Grave 77. (1.) (L.)
TO. 346. Bowl of fine white limestone, VIII, with a shallow groove running round the inside of the rim; rim chipped but virtually complete. Ht. 0·065 m., diam. 0·135 m. Grave 84. (1.) (B.)

TO. 347. Calcite vase, XXXIV, broken but almost complete; ht. 0·125 m., diam. 0·115 m. Grave 73. (1.) (B.)

TO. 348. Bowl of greenish white limestone, XIII, about one-third missing; ht. 0·065 m., diam. 0·13 m. Loose in surface soil. (B.)

TO. 349. Bowl of coarse white limestone, VIII, broken and incomplete; ht. 0·07 m., diam. 0·16 m. Grave 67. (5.) (L.)

TO. 350. Bowl of fine white limestone, VIII, ht. 0·055 m., diam. 0·11 m. Grave 92. (2.) (L.)

TO. 351. Bowl of greenish grey stone, XI, but roughly made and irregular; ht. *c.* 0·02 m., diam. 0·075 m. Grave 94. (15.) (L.)

TO. 352. Copper bowl, in shape a flattened hemisphere; part of one side broken away, but replaced. Ht. 0·055 m., diam. 0·18 m. Grave 46. (P.)

TO. 353. Copper bowl, broken and crushed; the base was circular, but the bowl itself may have been oval (cf. TO. 354); ht. 0·085 m., actual length 0·16 m., width 0·10 m. Grave 63. (P.)

TO. 354. Copper bowl, with flat oval base; broken but complete; ht. 0·08 m., rim 0·16 m. × 0·105 m. This oval type of metal bowl occurs also at Susa. Grave 92. (L.)

TO. 355. Copper vase, rim chipped but otherwise intact, ht. 0·125 m., diam. of rim 0·13 m. Grave 76. Pl. XLVIII. (P.)

TO. 356. Copper axe; l. 0·16 m., ht. of haft, 0·09 m. In the socket are preserved traces of the wooden handle. Grave 52. (2.) Fig. 75. (P.)

FIG. 75.

TO. 357. Copper axe, similar to last, l. 0·14 m., ht. 0·09 m. Grave 83. (L.)

TO. 358. Copper staff-head (?). The spike at the base preserves traces of the wood in which it was fixed. The shape, which recalls the conventionalized ostrich-feathers of Egypt, might possibly be derived from bull's horns. It would be difficult to explain it as a tool or weapon, and that it served some ceremonial purpose is more likely. Ht. 0·145 m., width 0·065 m. Grave 77. (10.) Pl. XLVIII. (L.)

TO. 359. Copper pin, l. 0·24 m., with a head formed of a large ball of lapis lazuli capped by a circular plate of gold; the stone is pierced like a bead and the shaft of the pin runs up through it. Similar beads have been found at Ur and at Kish (S. Langdon, *Kish*, Pl. XIX, 4). Grave 52. (1.) Pl. XLVIII. (L.)

TO. 361. Copper dagger-blade, leaf-shaped and secured to the handle by three rivets; the metal is flat with no central rib; for the type compare Petrie, *Tools and Weapons*, Pl. XXXIII, 1, of second prehistoric period in Egypt. The dagger had been in a wooden sheath of which traces remained, fastened together with long copper rivets; l. 0·215 m., greatest width 0·045 m. Grave 91. (1.) Fig. 76. (P.)

FIG. 76.

TO. 368. Copper pin, circular section, l. 0·18 m., pointed at one end. Grave 73. (P.)

TO. 369. Clay figurine of a bird, very rudely modelled in greenish drab clay, ht. 0·045 m. Found in the surface soil, but probably belonging to the prehistoric period, to which both the technique and the character of the clay would assign it. Pl. XLVIII.

TO. 370. Bone awl or pin, roughly made but sharpened to a fairly fine point; l. 0·105 m., greatest width 0·023 m. Found in surface soil. (L.)

TO. 371. Bone awl or pin, the point only; a rather thick and clumsy tool sharpened to a good point; l. 0·07 m., greatest width, 0·023 m. Loose in surface soil. (B.)

TO. 372. Toilet-spoon (?) carved in grey obsidian. Only the bowl of the 'spoon' is preserved, made in the shape of a human hand with very short fingers; present l. 0·027 m., width 0·012 m. Prehistoric period. Found loose in surface soil. Fig. 77. (B.)

TO. 378–82. Polished stone celts found on the surface of the cemetery; period uncertain, probably of the First Dynasty of Ur. Pl. XLVII. (B.), (L.), and (P.).

FIG. 77.

TO. 383. A number of small spindle-whorls or thread-weights of baked clay, average ht. 0·01 m., diam. 0·02 m. Found freely in the hut settlement and also in the soil of the cemetery.

TO. 384. Copper fish-hook, hafted and barbed, l. 0·041 m. The haft is made by simply flattening out the stem. Found loose in soil; period uncertain. Pl. XLVIII. (L.)

TO. 385. Six flat disks of baked clay each pierced by one or, more often, two circular holes; purpose uncertain. Average diam. 0·07 m., thickness 0·015 m. Found loose in soil. Pl. XXXVII.

TO. 386. Ear-studs, of two types, see Pl. XXXVII.

(A) black and white breccia, diam. 0·016 m., type (1).

(B) grey slate, diam. 0·028 m., type (2).
(C) grey slate, diam. 0·03 m., type (2).
(D) bituminous paste (or shale ?), diam. 0·032 m., type (2).
(E) baked clay, diam. 0·022 m., type (1).
All found loose in the soil.

TO. 387. Pin (?) of grey steatite with round shaft and conical head, shaft broken, l. 0·045 m. Loose in soil. Prehistoric period. Pl. XXXVII. (L.)

TO. 388–90. Seven nail-like studs of obsidian and crystal, lengths from 0·013 m. (broken) to 0·034 m., with flat circular heads. All found loose in soil. Prehistoric period. Pl. XXXVII. (P.)

TO. 400. Bone awl or pin, finely pointed, other end broken, l. 0·107 m. Grave 9. (10.) (B.)

TO. 401. Spindle-whorls made of bitumen, rough; seven found loose in soil.

TO. 402. Balls of bitumen, roughly made and flattened and indented on one side. Use unknown. Grave 9, and loose in soil.

TO. 403. Gaming-piece of pink limestone, a solid triangle with sides 0·018 m. long. Loose in soil. (B.)

TO. 404. Gaming-piece of light drab limestone, hemispherical, diam. 0·021 m., ht. 0·017 m. Loose in soil. (P.)

TO. 405. Bust of figurine hand-modelled in clay and painted with black. The head is of the primitive bird-like form, the eyes long and slanting, made with applied strips of clay, the hair goes into a peak behind, painted black, the nostril is represented by a small hole. A black band round the whole of the long neck, with pendant lines, represents a broad necklace; the breasts are small but well marked, and the figure is clearly feminine. For a similar figure from Abu Shahrain *v. Journal of Egyptian Archaeology*, vol. IX (1923), p. 192, Fig. 7, and Plate XXXVII, Fig. 2; ht. 0·043 m. Loose in soil. Pl. XLVII. (L.)

TO. 407. Clay figurine, fragment of; modelled in greenish clay with details painted in black. Part, from the waist to the knee, of a figure of a man (?) wearing tight knickerbockers laced down the front and tied round the waist and at the knee; ht. 0·055 m. Loose in soil. Pl. XLVIII. (P.)

TO. 408. Beads, 63 ring-beads of pink pebble and one calcite bugle. Grave 74. (B.)

TO. 409. Beads, double conoids of lapis lazuli, poor colour, and 20 similarly shaped beads of silver, much decayed. Grave 92. (3.) (L.) Pl. XXXVII.

TO. 410. Beads, 39 lapis beads, mostly rings, 6 carnelian rings, 11 copper ball beads, and 1 large circular lapis pendant with engraved spiral on one face; diam. 0·021 m., pierced sideways with three holes. Grave 73. (P.)

TO. 411. Two rings of copper wire twisted round, diam. 0·033 m.; perhaps ear-rings, Grave 73. (L.)

TO. 412. Beads, of rock crystal, lapis, carnelian, agate, and shell found loose in the soil. (L.)

TO. 413. Amulet of brown baked clay, flattened lentoid with roughly incised pattern, 0·028 m. × 0·019 m. Grave 57. Pl. XXXVII. (B.)

TO. 414. Amulet of black steatite, flattened lentoid with roughly incised pattern, 0·02 m. × 0·017 m. Grave 58. Pl. XXXVII. (B.)

TO. 415. Amulet of brown baked clay, flattened lentoid with roughly incised pattern, 0·035 m. × 0·019 m. Loose in soil. Pl. XXXVII. (B.)

TO. 416. Amulet of black baked clay, oval, roughly shaped and with roughly incised pattern, 0·027 m. × 0·018 m. Loose in soil. Pl. XXXVII. (P.)

TO. 417. Amulet of brown carnelian, thick and flat edged, pierced longitudinally, with roughly incised pattern, 0·018 m. × 0·017 m. Loose in soil. Pl. XXXVII. (P.)

TO. 418. Amulet of dark grey pebble, crescent-shaped, one point chipped, pierced through the arc of the crescent, 0·020 m. × 0·025 m. Loose in soil. Pl. XXXVII. (P.)

TO. 419. Beads, carnelian and white shell and lapis lazuli with one plain rhomboid amulet of white quartzite. Grave 65. (L.)

TO. 420. Copper pin with round shaft and plain ball head, l. 0·15 m. Broken. Grave 65. (L.)

TO. 421. Two small lumps of red haematitic matter, giving on analysis 3·7% water, 52·8% SiO_2, 32·4% Fe_2O_3, 1·4% Al_2O_3, 6·1% $CaCo_3$, 2·7% $MgCo_3$; or, calculated as in the case of TO. 440 below, 61·0 SiO_2, 37·5 Fe_2O_3, 1·5 Al_2O_3. Analysis by Dr. Alexander Scott, F.R.S., Director of the British Museum Laboratory.

TO. 423. Model in baked clay of a flint hoe (cf. TO. 21), the point broken and missing; l. 0·115 m., width 0·065 m. Loose in soil. (B.)

TO. 424. Model in baked clay of a flint implement (cf. TO. 281) curved and with the cutting edge on the concave side, 0·122 m. × 0·043 m. Loose in soil. (L.)

TO. 426. Bowl of coarse white limestone, XXIII; ht. 0·15 m., diam. 0·27 m. Grave 77; it lay beneath the head of the corpse and the skull had fallen into it and was firmly fixed there. (B.)
TO. 435. Clay sickles, from the trench and from the surface soil; *v.* pp. 8, 48, 151, and *ibid.*, note 1; *cf.* Pl. XV, 4.
TO. 436. Small clay cones for encrustation in a wall; *v.* pp. 8, 49. Collected from the trench, from the surface soil of the cemetery, and from below the south-east stairs of the temple, underneath the brick ramp (*v.* p. 153). *Cf.* Pl. XV, 2.
TO. 437. Limestone mace-head, uninscribed; ht. 0·036 m., diam. 0·055 m. Loose in soil. (B.)
TO. 438. Two cockle-shells, genus *Cardium*, containing a green paint made from powdered malachite. Grave 85. *Cf.* Mackay, *Report*, I, Pl. III. (L.) and (P.).
TO. 439. Two large shells cut open so as to form a sort of ladle, l. 0·20 m. Loose in soil.
TO. 440. Small lumps of red paint, or rouge, apparently prepared artificially from the natural substance TO. 421 together with which they were found. Analysis 69·6% SiO_2, 26·8% Fe_2O_3, 3·6% Al_2O_3; by Dr. Alexander Scott, F.R.S., Director of the British Museum Laboratory.
TO. 455. Vase, red clay, XLVI, ht. 0·10 m. Loose in soil.
TO. 456. Vase, drab clay, XLVI, ht. 0·08 m. Grave 62.
TO. 457. Vase, drab clay, XLIX, ht. 0·124 m. Grave 70. (22.)
TO. 458. Vase, red clay, XLVI, ht. 0·095 m. Grave 94. (1.)
TO. 459. Vase, buff clay, XLVII, ht. 0·102 m. Grave 74. (2.)
TO. 460. Vase, red clay, XXXIX, ht. 0·085 m. Grave 58.
TO. 461. Vase, red clay, LIX, ht. 0·148 m. Loose in soil.
TO. 462. Vase, drab clay, LVII, ht. 0·155 m. Grave 80. (7.)
TO. 463. Vase, drab clay, roughly made, with mark incised on side thus, , XXVIII, ht. 0·14 m. Grave 51. (4.)
TO. 464. Vase, red clay, XXXII, broken at neck, ht. 0·19 m. Grave 56 B. (2.)
TO. 465. Vase, buff clay, cream surface, XXXII, ht. 0·295 m. Grave 88.
TO. 466. Vase, buff clay, XII, broken, ht. 0·105 m. Grave 82.
TO. 467. Vase, drab clay, LXXII, ht. 0·10 m. Grave 89. (7.)
TO. 468. Vase, red clay, LXIX, rim broken, ht. 0·113 m. Loose in soil.
TO. 469. Vase, red clay, rough, IX, ht. 0·116 m. Grave 61. (4.)
TO. 470. Vase, red clay, LIV, ht. 0·176 m. Loose in soil.
TO. 471. Vase, drab clay, XXIX, ht. 0·205 m. Grave 82. (14.)
TO. 472. Vase, drab clay, XXIX, ht. 0·248 m. Loose in soil.
TO. 473. Vase, reddish drab clay, XXXI, ht. 0·217 m. Loose in soil.
TO. 474. Vase, reddish drab clay, XXXI, ht. 0·122 m. Loose in soil.
TO. 475. Vase, buff clay, LXXI, broken at neck, ht. 0·145 m. Grave 61. (11.)
TO. 476. Vase, reddish clay, buff surface, XXXV, ht. 0·253 m. Grave 77. (4.)
TO. 477. Vase, reddish drab clay, XXXIII, ht. 0·30 m. Grave 84.
TO. 478. Vase, buff clay, XXXV, ht. 0·216 m. Grave 88. (16.)
TO. 479. Vase, drab clay, XXV, ht. 0·36 m. Grave 56 B. (11.)
TO. 480. Vase, drab clay, XXII, ht. 0·312 m. Grave 80. (9.)
TO. 481. Vase, drab clay, XL, ht. 0·185 m. Loose in soil at a low level.
TO. 482. Vase, drab clay, LIII, ht. 0·215 m. Grave 80. (12.)
TO. 483. Vase, red clay light on surface, LI, ht. 0·127 m. Loose in soil.
TO. 484. Vase, drab clay, XXVIII, ht. 0·19 m. Grave 87.
TO. 485. Vase, red clay, XXXVI, ht. 0·256 m. Grave 88. (8.)
TO. 486. Vase, light red clay, XCIII, ht. 0·25 m. Grave 82. (2.)
TO. 487. Vase, red clay, XCV, with incised pattern, broken, ht. 0·21 m. Grave 50. (1.)
TO. 488. Vase, probably a drum or tom-tom, drab clay, XCVI, ht. 0·165 m. Grave 70. (1.)
TO. 489. Vase, red clay, XVI, diam. 0·205 m. Grave 74. (4.)
TO. 490. Vase, red clay, LVI, with small pierced lugs, broken at base, ht. *c.* 0·23 m. Grave 50. (3.)
TO. 491. Vase, red clay, XV, broken, diam. 0·17 m. Grave 70.
TO. 492. Vase, buff clay, XV, broken, diam. 0·169 m. Grave 70.
TO. 493. Vase, drab clay, XIV, broken. Grave 88. (4.)
TO. 494. Vase, drab clay, LIV, broken, ht. 0·135 m. Grave 7. (7.)
TO. 495. Vase, buff clay, XCVIII, broken. Grave 66.
TO. 496. Vase, reddish drab clay, LXXVI, ht. 0·24 m. Grave 56. (11.)
TO. 497. Vase, red clay, LXXVII, roughly made, ht. 0·182 m. Grave 49. (2.)

TO. 498. Vase, reddish buff clay, LXXX, ht. 0·192 m. Found not in a grave group but together with other pots which formed a definite stratum, while below them there was a stratum of burnt matter containing a large quantity of painted pottery fragments. *v.* p. 154.
TO. 499. Vase, red clay, LXXXIII, ht. 0·207 m. Grave 70. (27.)
TO. 500. Vase, light red clay, LXXXIV, ht. 0·215 m. Loose in soil.
TO. 501. Vase, greenish clay, LXXXV, ht. 0·157 m. Grave 49. (1.)
TO. 502. Vase, red clay, LXXXVI, ht. 0·18 m. Grave 76. (4.)
TO. 503. Vase, drab clay, LXXXIX, ht. 0·224. Grave 61. (10.)
TO. 504. Vase, red clay, XCIV, ht. 0·13 m. Grave 86.
TO. 505. Vase, drab clay, XIX, unusually large, with flat base and cord pattern below rim, ht. 0·30 m. Grave 14.
TO. 506. Vase, light red clay, LXXV, ht. 0·44 m. Grave 88.
TO. 507. Vase, creamy white clay, LXXXVII, ht. 0·29 m. Loose in soil.
TO. 508. Vase, creamy white clay, LXXXVII, ht. 0·40 m. Grave 88.
TO. 509. Vase, drab clay, XXVI, ht. 0·294. Grave 74. (1.)
TO. 510. Vase, drab clay, XXVII, with solid lug, ht. 0·352 m. Grave 88. (11.)
TO. 511. Vase, creamy white clay, LXXXVII, broken. Grave 88.
TO. 512. Vase, red clay, XCVII, fragment only. Grave 2.
TO. 513. Vase, red clay, XCVII, broken. Grave 2.
TO. 514. Vase, red clay, XCVII, broken. Grave 2.
TO. 515. Vase (half only of), buff clay, P. viii, painted with a geometrical design in black, with pierced lugs; ht. 0·115 m., hand-turned. Grave 64. (2.) Pl. XLIX. (L.)
TO. 516. Vase, greenish clay painted with design in black, P. vi, hand-turned, ht. 0·08 m., diam. *c.* 0·175 m. Found in fragments and incomplete in the trench across the hut settlement. Pl. XLIX.
TO. 517. Vase, fragments of, light greenish clay with painted design in black, P. v, distorted; ht. 0·065 m., diam. 0·20 m. Found with other fragments in a burnt stratum below a group of First Dynasty pots (*v.* TO. 498). Pl. XLIX. (L.) BM. 117007. 1224. 9–20, 270.
TO. 518. Vase, two fragments of, fitting together, of light drab clay with painted design in black, P. x, hand-turned; ht. 0·05 m., diam. 0·07 m. Pl. XLIX. (L.) BM. 117006. 1924. 9–20, 269.
TO. 519. Vase, fragment of, light greenish drab clay with painted design in black, P. xi, found loose in soil.
TO. 520. Clay vase-cover; a roundel with nicked edges and a hole through the centre, slightly convex above; on the top a design painted in black on the body colour. Loose in soil. Pl. XLVIII. (L.)
TO. 521. Vase, light red clay, wheel-made, P. XV. B., having on shoulder a design painted in deep purplish red; ht. 0·225 m. Found with other pots (*v.* TO. 498) above a burnt stratum containing painted pottery. (L.)
TO. 522. Vase, wheel-made, light red clay, LXXX, having below the shoulder two plain bands painted in deep purplish red; ht. 0·135 m. Grave 90. (B.)
TO. 524. Vase; fragments of a large bowl (P. v.) of greenish drab ware with a single plain band of black paint below the rim. Grave 64. (4.)
TO. 525. Two fragments (not fitting together) from a large bowl (P. v.) of thin light greenish ware with horizontal bands and vertical hatching round rim.
TO. 529. Flint implement, l. 0·10 m., width 0·07 m. Grave 44. (5.) Pl. XLVII.
TO. 530. Model of a metal (?) knife made in greenish clay with black paint on the haft and along both edges of the blade; only the lower end of the blade left; present length, 0·108 m., width of blade, 0·039 m. Grave 44. (4.) Pl. XLVIII. (L.)
TO. 531. Spindle-whorl of baked greenish clay, diam. 0·055 m. Grave 18. (B.)
TO. 532. Model boat (belum), fragment of; one half of a broad-beamed belum with tightly curled prow, made in light reddish clay with a band of dark red paint along the freeboard and over the curled prow, l. 0·12 m., width 0·10 m. Loose in soil. Pl. XLVIII.
TO. 533. Vase, greenish drab clay, P. v, hand-turned, with band of black paint round rim; restored from fragments; ht. 0·07 m., diam. 0·18 m. Loose in soil.
TO. 534. Fragment of a model of a house (?) in painted clay, black colour on buff ground. The house would seem to be built with timber uprights filled in with matting: the roof is steeply pitched and is also apparently of mat work on a timber frame. Pl. XLVII. B.M. 117010.

CHAPTER X

REPORT ON THE HUMAN REMAINS

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In this report descriptions are given of the skulls of two groups of people. Those of the first group were obtained in the winter of 1923–4 from graves in the ancient cemetery at al-'Ubaid and represent the earliest inhabitants of Mesopotamia that have so far come under the eye of the craniologist. The Director of the Joint Expedition, Mr. C. Leonard Woolley, assigns this group to a date about the beginning of the fourth millennium B. C. or earlier. The skulls of the second group of people were obtained during the winter 1925–6 under the ' Tomb Mound ' at Ur; they lay in brick-built and other tombs under the floors of houses. These graves Mr. Woolley assigns to a period dating between 1900 and 1700 B. C. These two groups of people were inhabitants of the same locality, for al-'Ubaid is only four miles to the west of Ur; but they were separated in point of time by more than two thousand years. These two groups, we shall find, differ in certain respects, yet in both groups we meet with the same series of types, only in a different proportion. There is evidence that new blood had entered southern Mesopotamia between the dates of the earlier and later burials, but the incomers were of a race closely allied in origin with the older inhabitants. Further I have had the good fortune to see in Oxford the skulls disinterred by the Oxford and Field Museum Expedition on the site of Kish; they represent inhabitants of Mesopotamia who lived 150 miles to the north-west of Ur and at a date rather earlier than the second group of people dealt with in this report. The skulls and bones brought home from Kish have been described by Dr. L. H. Dudley Buxton of Oxford University (see *Excavations at Kish*, vol. i, 1924, by S. Langdon, M.A.); from Dr. Buxton's account and from my own examination of these skulls I am convinced that the ancient inhabitants of Ur and of Kish were of the same racial composition.

It is true, as Dr. Buxton has pointed out, that a considerable diversity of head-form is found amongst these ancient Sumerians, but that diversity is not more than is met with in races of mankind considered to be pure. On the evidence now before me I have come to the conclusion that in ancient times the whole of Mesopotamia was inhabited by a people of the same physical type and of the same racial origin. Further, from an examination of the photographs of living Mesopotamians shown at the meeting of the British Association at Oxford by Dr. Buxton, I have no doubt that the same race now occupies the lower plains of the Tigris and Euphrates that occupied them in ancient times. I would refer here to Pl. xxxv, which gives a portrait in profile of Hamoudi, Mr. Woolley's North-Syrian foreman, who is of Arab

descent; his facial features reproduce a combination of details which can be identified in the facial outlines of the skulls recovered at Ur and at al-'Ubaid. In the identification of race, facial features provide the most reliable guide; skull-form has to be taken into account, but for the identification of the less imperfectly differentiated races, the form of nose, forehead, cheeks, chin, and orbits, have to be given the higher value. Unfortunately our knowledge of the physical anthropology of the modern population of Mesopotamia is slight; but upon such evidence as we have, we may infer that there has been no real racial change or substitution in the lower valley of the Tigris and Euphrates any more than in the lower valley of the Nile. Modern Mesopotamians are the descendants of the ancient inhabitants of the valley in the same literal sense as modern Egyptians are the descendants of the Egyptians of Pyramid times. It is highly probable that these modern representatives are not the equals of their distant forefathers; selection has favoured the survival of more persistent but less intellectual strains; but nevertheless their racial nature, as measured by anthropologists, has not changed.

A paper published by Dr. Charles Seligman ' On the Physical Characters of the Arabs ' (*Journal Royal Anthropological Institute*, 1917, vol. 47, p. 214) sums up our present knowledge of the racial characters of the Arabs and gives the dimensions of the Arab crania in the Museum of the Royal College of Surgeons. It is therefore not necessary for me to give the measurements of these modern skulls, but it is important that mention should be made of five specimens found in graves at Palmyra and which may go back to early Christian times or may be pre-Christian. Three are of men, two are of women. Two of the male skulls might have come from al-'Ubaid, so like are they in form and dimensions to specimens described here. The women's skulls are small but of the ancient type. Dr. E. T. Harvey (*Nouv. Arch. du Musée*, 1885, vol. vii, n.s., p. 43) described five skulls, some from brick graves and others from earthenware coffins found on the site of Babylon which may belong to about the same period as the skulls from Ur, described in this report. Here again we meet with the same types—particularly the long, big, evenly arched type which prevails in the al-'Ubaid series. We thus see that the Sumerian type of man has come down to our time.

I have introduced this brief discussion on racial continuity in Mesopotamia and Egypt in order to offer an answer to a question of some importance. Of what race were the Ancient Sumerians? We can answer that question if we can assign their descendants—modern Mesopotamians—to a racial category. They are people with nut-brown skins, as dark, or even darker than people of the Mediterranean stock. Like the people of that stock they are inclined to be hairy and to have long and narrow heads. They certainly belong to the same racial division of mankind as the nationalities of Europe; they are scions of the Caucasian stock. If we look at a map of Asia on which the areas occupied by the various racial divisions of mankind are indicated, such as that published as a frontispiece to vol. iii of Ratzel's *History of Mankind* (English translation, 1898), we see that Mesopotamia lies along a racial

watershed or zone of transition. To the south and west lies the whole of the great Arabian peninsula, from the Indian Ocean to the Levant, marked as the home of the *Semites*; to the north and east the homeland of the *Iranians* stretches from the valley of the Indus to the Black Sea. Mesopotamia is regarded as lying on the Semitic side of the boundary line between the prevailing type of modern Persia and that which is most commonly met with in the great Arabian peninsula of to-day. We shall find, when we proceed to describe the racial features of the ancient people of Ur, that they share in the characteristics of both types; they are both Iranian and Semitic. It is usual to explain the existence of such intermediate types as being the result of hybridization, brought about by peaceful penetration or as a result of warlike measures. No doubt intermarriage and hybridization do take place across racial frontiers, but we cannot in this way explain the evolution of the original Iranian and Semitic stocks. Both have clearly arisen, at some remote period, from a common ancestry, and we therefore ought to find between the centres or cradles of their evolution an intermediate or transitional type. The Mesopotamian peoples, both past and present, represent a transition between Iranian and Semitic types, but they have retained more of the Iranian than of the Semite. One can still trace the ancient Sumerian face eastwards among the inhabitants of Afghanistan and Beluchistan, until the valley of the Indus is reached—some 1,500 miles distant from Mesopotamia; the valley of the Indus represents another racial watershed, that which separates the Iranian from the Panjābi type. The civilization of Ancient Babylonia was evolved in the very heart of that part of Asia which has been the homeland of the Iran-Semitic stocks. On the other hand the civilization of Egypt arose on another transitional racial zone—that which lies between Semite and Hamite. In every point wherein the Hamitic type of north-eastern Africa differs from the Semitic, it approaches the essential type of Africa—the Negro. It is difficult to believe that the people represented by the predynastic skulls of Egypt were the pioneers of civilization; on the other hand the people represented by the skulls which Mr. Woolley has recovered at al-'Ubaid were large-brained, with strong facial features, and answer well to the ideal which anthropologists expect to find in a race of pioneers.

Enumeration of Skulls from al-'Ubaid. Having thus placed before my readers the opinions I have formed regarding the racial nature of the Ancient Sumerians, I proceed to the proper matter of my report—an account of the materials submitted to me by Mr. Woolley. The remains from al-'Ubaid represent 17 individuals, 9 of them adult males, 6 adult females, a youth aged about 18, and a child aged about 7 years. Five of the male skulls are approximately complete, two lack large parts of the base and face, two are mere fragments; three of the women's skulls are sufficiently preserved for yielding all measurements; three are incomplete. Almost all of them, when first exposed, were broken into many fragments and flattened by the pressure of overlying strata. The recovery of these remains is wholly owing to the skill and care exercised by Mr. Woolley; he impregnated the fragile pieces as they lay *in situ* with melted paraffin wax and was able to raise blocks of

soil containing all the cranial parts still embedded in them. These blocks he brought home, and from them Mr. E. Smith, an attendant in the Museum of the Royal College of Surgeons, succeeded in restoring most of the skulls to their original form. Most of them are a patchwork of fragments; all of them have to be handled with the utmost care. As will be seen from the adjoining list, three of them have been warped by soil-pressure and can be utilized for only a few measurements. All of the al-'Ubaid skulls have assumed, as they dried, a reddish grey colour—with one exception—that of the woman's skull—No. VIII—with which Mr. Woolley succeeded in recovering the greater part of the skeleton. All the skulls are brittle. In all cases the upper cervical vertebrae lay in the soil with the skull, showing that the bodies had not been disturbed since their interment.

In the group of people from al-'Ubaid there is a very high percentage of aged individuals. Judging from the obliteration of the cranial sutures and the wear of the teeth, I infer that at least eight of the fifteen adults were over 60 years of age. I have never seen human teeth worn down to the degree found in the al-'Ubaid people. In eight of them—four men and four women—the upper incisors were worn down almost to the level of their sockets; in one woman, the roots of the molar teeth have been exposed and were used in mastication. In all cases the upper incisors were much more deeply worn than the lower incisors. As will be seen from a census of the teeth, given in another part of the report, dental abscesses were common, but caries was almost entirely absent. Another feature worthy of note was the thickness of the skulls along the roof—particularly at the parietal eminences. In five skulls the parietal at this region had a thickness of 8 mm. or more. The thickening is due to the amount of spongy bone laid down between inner and outer tables, and may be a mark of senility.

Skull No. I. (Tomb reference C. 58.) Male, aged 45 or more; vault 3–5 mm. thick; part of the nose broken away; one can detect a median elevation beginning on the upper forehead and passing backwards along the median line of the roof (Plate LXIII).

No. II. (Marked A, from a grave containing no objects other than the skull, and therefore not recorded.) The first skull of this series which came to light; a male, aged 60 or more; skull along the vault 7 mm. thick, rising to 10 mm. at the parietal eminence; right half of face is absent; teeth deeply worn (Plates LXIII–LXIV).

No. III. (C. 56.) Male, age about 60; vault thickness 6–7 mm.; incisor teeth quite vertical in direction, the lateral frontal region has been crushed inwards on the left side; the planum occipitale, for the attachment of the neck, is flat and directed almost vertically downwards; rheumatic changes in joints of vertebrae of neck (Plates LXIV, LXV).

No. IV. (C. 62.) Male, age 55 or more, teeth reduced to mere stumps by chewing; vault thickness 5–6 mm.; small os bregmaticum present; the right half of the face is missing; severe rheumatic changes in the joints of the cervical vertebrae. This skull differs from the three preceding

by having a more vertical dip in the hinder part of the parietal bone, giving a square shape to the whole skull when viewed in profile (Plate LXV).

No. V. (C. 57.) Male, age 65 or more; reconstructed from fragments; shows warping from lateral compression; vault thickness 3–5 mm.; part of face missing; a massive and capacious skull of the same general form as Nos. I, II, and III.

No. VI. (C. 63.) Male, age 65 or more; reconstructed from fragments; deformed from soil compression; of the same type as Nos. I, II, III. Vault thickness 5–6 mm.; crowns worn off upper teeth.

No. VII. (From an otherwise empty and ruined grave.) Male, aged 65 or more; upper teeth worn down almost to their sockets; vault thickness 9 mm.; bone crumbling; second and third cervical vertebrae united as a result of rheumatic changes (Plate LXVI).

No. XI. (C. 29.) Male; very aged; only part of the vault has been preserved, but the original skull was clearly of the elongated narrow type represented by Nos. I, II, III, V, VI. Vault thickness 6–8 mm.

No. XII. (From a ruined and otherwise empty grave.) Male, very aged; only the vault from nasion to lambda is present, except the lower jaw, in which the front incisors are worn to chisel-shaped stumps, the lower incisors biting in front of the upper incisors; vault thickness, 5–6 mm.

No. XIV. (C. 40.) Male; aged 65 or more; fragmentary; deformed by earth compression; only the forehead and root of the nose and parts of the jaws are available for study; vault thickness 7 mm.

No. VIII. (O. C. 18; a later grave; v. tomb notes.) Skull and skeleton of a woman aged about 35 or 40. The bones are of a different colour and texture from the others, being straw coloured and less brittle. Vault thickness 7–10 mm.; teeth only slightly worn; forehead full and lofty; skull square in shape; differs from other skulls, but may be merely a family characteristic (Plates LXVI–LXVII).

No. IX. (From a ruined and otherwise empty grave.) Female, aged 60 or more; upper teeth are mere stumps; part of the face missing, but enough remains to show small and regular features. The skull is small but of the same type as that represented by the long-headed males (Plate LXVII–LXVIII).

No. X. (From a ruined and otherwise empty grave.) Female; aged between 50–60. Successfully reconstructed from fragments. Delicate thin bones, those of the vault having a thickness of 4–5 mm. Teeth worn to stumps. Many wormian bones in lambdoid suture. Upper incisors are proclivous. This skull is also of the long form prevalent amongst the males (Plates LXVIII).

No. XIII. (From a ruined and otherwise empty grave.) Female; very aged; mussel shell and fragment of greyish green pottery with black pattern found in earth under the skull; base of skull and forehead are missing; only limited number of measurements could be taken; vault thickness 6–9 mm.; a fragment of the upper jaw shows teeth ground to the roots.

No. XV. (From a ruined and otherwise empty grave.) The upper and lower jaws of an old woman, the teeth being ground to the roots. Cervical vertebrae showed that she suffered from rheumatism.

No. XVI. Left half of a lower jaw of a youth aged about 18 years. All the teeth are fully erupted save the last molars or wisdom teeth which are still deep in the jaw.

No. XVII. Skull of a child about 7 years of age, the permanent incisors being in place and the second molars about to cut. The skull is compressed laterally and its parts so fragile that no attempt has been made at reconstruction.

Enumeration of the Individuals represented in the Second Group. The remains of this group were found in graves under the 'Tomb Mound' of Ur and are assigned by Mr. Woolley to an early date in the second millennium B. C. Seven individuals are represented, three men and four women, three of the women's skulls being imperfect. The skulls of this group differ from the last in their state of preservation; their surfaces tend to crack and their teeth to crumble into dust, but they show no deformity from earth pressure. There are also points of difference in size and shape which will be touched on as I proceed. One notices also two other points wherein the two groups differ; there is an absence of aged individuals in the Ur groups, and also although their teeth are much less worn than in the al-'Ubaid people, yet there was a greater loss of the molar teeth from disease.

No. 1.[1] (K. P., C. G. 1.) Male; age about 50; lower jaw absent; the skull has the elongated low-arched form which was prevalent amongst the men of the former group. A median crest is traceable as it passes backwards on the upper part of the frontal bone and along each side of the sagittal suture. Vault thickness 5–6 mm. A strong skull of unusual size.

No. 2. (C. 39.) Male; age about 35–40; teeth only slightly worn; represents the smaller type of the former group. The base and lower part of the occiput are missing.

No. 3. (C. 40.) Male; age about 45; vault thickness from 7 to 9 mm.; of the same type as the last.

No. 4. (E. H., G. 3.) Female; age about 60; vault thickness 5–7 mm.; part of base missing.

No. 5. (E. H., G. 20.) Female; age about 30, buried in last found tomb; much of the base and face are missing; feminine characters are emphasized.

No. 6. (L. R., G. 1.) Female, age about 45; most of the forehead and all the basal parts have disappeared; reconstructed from fragments; vault thickness 5–7 mm.; teeth were deeply worn.

No. 7. (C. 28.) Female; age about 40; much of the face and the whole of the base are absent. Thickness of vault 8 mm.

[1] The al-'Ubaid skulls are marked by Roman numerals all through this report; the Ur skulls have Arabic numerals as indications.

Dimensions and Shape of the Brain-containing Parts of the Skulls. In Table I are given measurements relating to the length, width, and height of the brain-containing parts of the skulls brought home by Mr. Woolley. Let us take the measurements relating to length first. In column A are given ' greatest lengths ' of the skulls as measured from glabella to the most distant point on the occiput by means of Flower's callipers. The mean length of six male skulls from al-'Ubaid (these are indicated on the table by Roman numerals) is 192·8 mm. This is a very high mean attained by few human races either living or extinct. Among ancient and modern Egyptians the skull of the male, in most series which have been measured, has a length of 185 mm.; a small sample of Panjābi male skulls gave a mean length of 185 mm.; the Sumerian skull was long compared with the type which prevails in Egypt and in India. One would not attach much importance to measurements made on so small a sample were it not that the male skulls from Ur, only three in number and marked in Table I in Arabic numerals, give even a higher mean, namely 193·6 mm. The only skulls which can rival them in length are those from the long barrows of England; the first series of long barrow male skulls measured by Dr. Thurnam had a mean length of 193 mm.;

TABLE I. CRANIAL DIMENSIONS

	Lengths			*Widths*					*Heights*			*Indices*		*Capacity*
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
No. I male	196	188	187	138	119	131	117	100	143	122	123	70·4	73	——
„ II „	201	195	190	145	105	126	115	96	133	121	123	72·1	66·2	1,600 c.c.
„ III „	192	191	194	143	105	118	120	93	(138)	125	123	74·1	(71·9)	——
„ IV „	187	182	169	139	112	131	120	100	133	110	112	74·3	71·1	——
„ V „	(193)	(184)	(192)	(144)	115	134	120	100	—	120	120	(74·6)	—	——
„ VI „	—	—	—	(140)	—	—	—	—	—	118	120	—	—	——
„ VII „	187	183	185	134	112	130	114	93	137	117	118	71·7	73·3	1,397 c.c.
„ XII „	194	187	187	142	—	—	120	96	—	—	—	73·2	—	——
Means	**192·8**	**187·7**	**185·4**	**140·1**	**111·3**	**128·4**	**117·3**	**97**	**136·5**	**119**	**119·6**	**72·6**	**71·2**	**1,488 c.c.**
No. 1 male	204	197	197	136	120	132	119	103	147	119	119	66·7	72·1	1,517 c.c.
„ 2 „	183	181	179	131	—	125	116	91	—	111	112	71·6	—	1,310 c.c.
„ 3 „	194	183	183	138	111	132	122	99	142	119	118	71·1	73·2	——
Means	**193·6**	**187**	**186·4**	**135**	**115·5**	**129·3**	**119**	**97·6**	**144·5**	**116·3**	**116·3**	**69·8**	**72·6**	**1,423 c.c.**
No. VIII female	182	177	177	140	117	131	118	91	136	118	118	76·9	74·7	——
„ IX „	177	171	166	142	107	129	115	91	134	109	111	80·2	75·7	——
„ X „	182	179	169	138	110	126	120	—	123	105	106	75·8	—	1,264 c.c.
„ XIII „	(185)	—	—	(140)	110	132	—	—	(137)	113	112	(75·7)	—	——
Means	**180·3**	**175·7**	**170·7**	**140**	**111**	**129·5**	**117·5**	**91**	**131**	**111·2**	**112·2**	**77·6**	**75·2**	**1,328 c.c.**
No. 4 female	187	183	176	132	109	124	114	92	136	118	118	70·6	72·7	——
„ 5 „	187	183	173	134	112	—	117	96	—	114	114	71·7	—	——
„ 6 „	(190)	—	—	(130)	—	—	—	—	—	(120)	(120)	(68·4)	—	——
„ 7 „	175	171	172	130	—	—	107	91	—	115	118	74·3	—	1,272 c.c.
Means	**183**	**179**	**173·6**	**132**	**110·5**	**124**	**112·6**	**93**	**136**	**115·6**	**116·6**	**72·2**	**72·7**	**1,320 c.c.**

Explanation :

A. Maximum length.
B. Glabello-lambda length.
C. Glabello-inial length.
D. Maximum width.
E. Biasterionic width.
F. Masto-parietal width (see text).
G. Maximal frontal width.
H. Minimal frontal width.
I. Basi-bregmatic height.
J. Auriculo-bregmatic height.
K. Auricular height.
L. Proportion of width to length.
M. Proportion of height to length.
N. Estimated cranial capacity.

the corresponding figure for the skulls of modern Englishmen is about 188 mm. A certain amount of this extreme length of Sumerian skulls is due

to well developed supraorbital ridges; when the length is measured from the lower part of the brow, as was the custom of Sir William Flower, the length is reduced in the al-'Ubaid skulls to 190·5 mm., 2 mm. less. The difference between these two measurements in the skulls of ancient Egyptians (males) is only 0·5 mm. Herein we see another distinction between Sumerian and Egyptian. The female Sumerian skulls were markedly shorter than the male; in the al-'Ubaid women (three in number) the mean was 12·5 mm. less than in the male, and in the Ur women (also three in number) 10·6 mm. less than the mean length for the corresponding males. In long-headed races the usual difference in length between the average male and female skull is about 8 mm.; the discovery of further examples will probably show that the sexual difference amongst ancient Sumerians was about the same as in modern races. When we seek for races which resemble the ancient Sumerians in length of skull we have to turn our attention to the long-headed peoples of Europe, particularly of ancient Europe.

The skulls of the ancient Sumerians were relatively narrow. In Table I, column D, are given the maximal widths of the al-'Ubaid and Ur skulls. In the skulls of male Europeans the maximal width of the skull usually lies near the junction of the parietal bones with the temporal; it is rarely situated high up in the region of the parietal eminences. In five of the seven al-'Ubaid male skulls the width just below the parietal eminence was equal to, or greater than, the width at a lower level. Strange to say, the greater interparietal width was more frequent in the male skulls than in those assigned to the opposite sex—the reverse being the rule in European skulls. The mean maximal width of the skull in six al-'Ubaid men was 140·1 mm.; the three female skulls from the same site have also a mean of 140 mm. Compared with ancient Egyptians the people of al-'Ubaid had wide skulls, for 134 mm. may be regarded as the prevailing maximal width in the skulls of ancient Egyptian males. In the sample of skulls of male Panjābis, already mentioned, the mean maximal width was 137 mm. In their width, as in their length, the parallels of the al-'Ubaid people have to be sought amongst the long-headed races of Europe. On the other hand both male and female skulls, from the site at Ur, are narrow; in the three male skulls the mean width is only 135 mm. One must not attach too much significance to a mean based on three specimens, but the three female skulls show a similar reduction in width, their mean being 132 mm. In width of head the people who were living in Ur early in the second millennium B. C. resembled Egyptians and Panjābis, and differed in this respect from the wider headed people who were buried at al-'Ubaid early in the fourth millennium B. C. What is the cause of this difference? I have stated, in a previous part of this report, that I considered that the earlier and later groups were members of the same race. This opinion was founded on a preliminary survey of all their cranial characters—made before I had taken actual measurements. In spite of the small size of these random samples and the liability to error of any inference drawn from them, this marked reduction in the width of head does suggest that after the fourth millennium Ur had been invaded or penetrated by an even narrower headed

people. Such a people is more likely to have come from Arabia than elsewhere. The reduction of head width may be a mark of the Semitic invasion which has been postulated by students of Babylonian culture.

In the identification of races importance has been attached, and rightly so, to what has been named the *cephalic index*—which in reality is the proportion which the maximum width bears to the maximum length. In Table I, column N, the cephalic indices are given, and it will be seen that the width of the skull in the al-'Ubaid men varies from 70 to 74 per cent. of the length, the mean being 72·6 per cent. In the three male skulls from Ur the width varies from 66 to 71 per cent., the mean being 69·8 per cent. Both groups are dolichocephalic ; the second, extremely so. As is usual in dolichocephalic or narrow-headed races, the women are less extreme than the men in this respect; the mean for the Ur women is 72·2 per cent.; in the much older women at al-'Ubaid, 77·6 per cent.; one of these, No. IX, has a skull width which is 80 per cent. of the length, she is technically brachycephalic, this is not due to a flattening or shortening of the hinder end of the skull—the usual cause of brachycephaly—but to a widening of the skull. I think it important to call attention to this fact, for not one of the skulls submitted to me can be assigned to the Armenoid or Hittite type. The cephalic index of two skulls which are essentially different in shape and of different racial origin may yet have the same cephalic index. It is for this reason that I attach more importance to the absolute dimensions of length and breadth than to the proportion which width holds to length. In coming to a conclusion as to the racial nature of the ancient Sumerians this view has to receive a full consideration. They were a dolichocephalic people, their breadth index varying from 66 per cent. to 80 per cent. The ancient Egyptians were also a dolichocephalic people, their mean index varying according to the group examined from 73 to 75 per cent. In their degree of dolichocephaly, as well as in absolute dimensions of length and width, the skull of the ancient Sumerians was much nearer to that of the long barrow men of England than to that of the ancient Egyptians. The men buried in the cave of L'Homme Mort in the south of France during the Neolithic period had a mean head length of 190·5 mm., a head width of 135·8 mm., giving a cephalic index of 71. These men seem to have been of the same stock as our long barrow men, and both of them were kin to the ancient inhabitants of Mesopotamia.

Comparison of Certain Groups of Predynastic Egyptians and Ancient Sumerians. Recently Dr. G. M. Morant has published an excellent ' Study of Egyptian Craniology from Prehistoric to Roman Times ' (*Biometrika*, 1925, vol. xvi, p. 1). In this publication Dr. Morant draws attention to the groups of predynastic skulls which were examined and described by Dr. D. Fouquet in the second volume (1897) of J. de Morgan's *Recherches sur les Origines de l'Égypte*. The skulls were obtained from cemeteries in Upper Egypt, their sites lying on the western bank both south and north of Abydos, the most distant being about 100 miles apart. M. de Morgan gives excellent drawings of some of the graves and of the furniture found in them. These graves, I think, would now be assigned to an early predynastic period—probably to

the latter part of the fifth millennium and therefore not distant as regards time from the cemetery at al-'Ubaid. Dr. Morant has drawn attention to the many points in which the crania described by Dr. Fouquet differ from all other Egyptian skulls, both dynastic and predynastic. In their absolute and relative dimensions they have a very direct resemblance to the Sumerian and also to the long-barrow type. Unfortunately the drawings which Dr. Fouquet gives of these skulls are useless for the purposes of anthropology—just as useless as are photographs. We may take the skulls from the most northerly of these cemeteries, at al-Kawāmil, as representative of this ancient people. Nineteen male skulls varied in length from 178 mm. to 204 mm., the mean being 188 mm.; the mean width was 139 mm., and the width 73·1 per cent. of the length. They were a big-headed dolichocephalic people. Eleven female skulls from al-Kawāmil varied in length from 168 mm. to 190 mm., the mean length being 179·6 mm., the mean width 132·4 mm., the width being 73·7 per cent. of the length. These early dwellers in the valley of the Nile were certainly near akin to the people of Ur whose remains are described here. Where the homeland of the type may have been tempts one to speculate—in spite of insufficiency of evidence. As a matter of probability one looks to Arabia or Mesopotamia for their origin rather than to Egypt. I should add that the resemblance of the predynastic Egyptian skulls, described by Dr. Fouquet, to the Sumerians described here, is much deeper than a mere approach in gross measurements; the likeness is to be seen in the details of facial conformation—particularly as regards the nose.

Concerning Occipital and Frontal Widths. In Table I certain other measurements of width are given of the al-'Ubaid and Ur skulls. In column E are given the biasterionic diameters taken between the posterior ends of the masto-parietal sutures, and in column F another width diameter—the anterior masto-parietal, taken between the anterior ends of the same sutures—just where the upper border of the mastoid begins to join the squamous part of the temporal bone. The absolute measurements of these two diameters, and particularly the proportion of the posterior to the anterior, give very definite information concerning the size and conformation of the hinder part of the head. For example, the biasterionic diameter of the Ur skulls is decidedly greater than in the al-'Ubaid skulls; in actual measurement and in relationship of the one diameter to the other, the Sumerian skulls resemble the crania from Kawāmil, but differ considerably from all other Egyptian crania.

The width of the skulls, known as the maximal and minimal frontal diameters, are also useful for the detection of racial likenesses. They are given for the Mesopotamian skulls in Table I, columns G, H. In the male skulls from al-'Ubaid the maximal frontal width is 117·3 mm., the minimal 97 mm., the difference between them 20·3 mm. Many factors determine the minimal frontal width, particularly the massiveness of the temporal ridges; the apparent width in the skull of Australian aborigines is due, to a considerable extent, to breadth of temporal ridges, not to a width of the anterior parts of the frontal lobes of the brain. In Egyptians and Sumerians the temporal ridges are of about the same development. In a series of male

Egyptian skulls of the Fourth Dynasty taken at random the maximal frontal width was 119·9 mm., the minimal width 93·2 mm., the difference 26·7 mm.—in comparison with a difference of 20·3 mm. in the al-'Ubaid crania and 21·4 mm. in the male skulls from Ur. In these points the Kawāmil crania approach much more closely to the Mesopotamian type; in the conformation of their frontal parts the Mesopotamian skulls resemble those of the longer headed European races.

Height Measurements. In Table I, columns I, J, K, three vertical diameters are given of the Sumerian skulls: in I, the usual basi-bregmatic diameter taken with Flower's callipers; in J, the distance of the bregma from a transverse axis joining the upper margins of the ear passages; in K, the height of the vault above the axis just mentioned when the skull is oriented in the Frankfort plane. The Sumerian skulls are high. In the male crania from al-'Ubaid the basi-bregmatic diameter varied from 133 to 143 mm., the mean being 136·5 mm.; in the male skulls from Ur, the mean was much greater—144·5—but only two specimens were available for measurement and one of these is of the big, long al-'Ubaid type; it will be seen that the female crania from Ur also exceeded in height those of the same sex from al-'Ubaid by 5 mm. There seems to be here further evidence of an infusion of new blood into Ur after the beginning of the fourth millennium and before the beginning of the second—for in the latter period the people had narrower and higher heads. In absolute and relative measurements of height the Mesopotamian skulls resemble our long-barrow skulls; the Kawāmil and other predynastic skulls from Egypt measured by Fouquet had a basi-bregmatic diameter of 137–8 mm.; in various series of dynastic and predynastic Egyptian crania this diameter has been found to vary between 132–6 mm., in this respect corresponding to the measurement which holds for the skulls of modern Englishmen and also of Panjābis. In column N the relationship of height to length of skull is given; in the al-'Ubaid group of male skulls the height represents 71·2 per cent. of the length, whereas the width diameter, being greater than the height, represents 72·6 per cent. of the length. In the two male skulls from Ur the height represents 72·6 per cent. of the length, the height being greater than the width which represents only about 70 per cent. of the length. In the female skulls from Ur, height and width are almost identical, whereas in the female skulls from al-'Ubaid, as in the male, the width exceeds the height by a considerable amount.

Professor Wingate Todd has pointed out that the height of the vault of the skull above the ear, when taken with the skull oriented in the Frankfort plane, and the distance of the bregma from the upper meätal axis, are almost identical. That will be seen to be so in the Sumerian skulls (columns J, K). As an indication of capacity of skull the auricular height gives a more reliable indication than the basi-bregmatic diameter. For example, in the al-'Ubaid males the height of the vault above the ear passages is 119·6 mm.—the basi-bregmatic height 136·5 mm., the difference between these two heights being 16·9 mm. and represents the basal or subauricular part of the skull. In the two male skulls from Ur the corresponding measurements are 144·5 mm.

and 116·3 mm., giving a difference of 28·2 mm.—nearly twice as much as in the al-'Ubaid male crania. The greater subauricular depth in the Ur crania is due to the downward and backward growth of that part of the occipital bone which bears the condyles, and articulates with the first vertebra. A great subauricular depth is a mark of primitiveness and of strength. With civilization comes a tendency to flattening of the base, reduction in size of condyles, and diminution of the subauricular depth. This flattening is seen in the skulls of the al-'Ubaid women. It is a little point to which I do not attach great importance, but so far as it may be used, it does indicate that the later people of Ur were more primitive in this respect than the earlier people found at al-'Ubaid.

The mean auricular height of the male al-'Ubaid skulls was 119·6 mm.; in the two male Ur skulls, 116·3 mm.; in the corresponding female groups 112·2 mm. and 116·6 mm. Dr. Fouquet does not give the auricular heights of his predynastic skulls, but from his description I infer that they had lofty vaults like those of the Sumerians. Among dynastic Egyptians the auricular height varies from 112 to 116 mm. according to the group of male skulls examined; they were low roofed as are the skulls of modern Englishmen. On the other hand the long-barrow skulls have high-pitched roofs, the auricular height in the males having a mean of 120 mm.—approximately the same as in the al-'Ubaid males.

Cranial Capacity. None of the skulls were in a condition suitable for making direct measurements of their capacity. This was estimated by use of a formula introduced by Lee and Pearson (*Phil. Trans.*, vol. 196, Series A, p. 243). The mean capacity (see Table I, column N) for the al-'Ubaid men obtained in this way is 1,488 c.c.—a little above the mean for modern Englishmen. The capacity of the largest skull of this series was 1,600 c.c.; that of the smallest 1,397 c.c. The last amount is a little above the mean for male Egyptian skulls from a late predynastic cemetery at Naqādah, the mean being 1,381 c.c. for male skulls and 1,287 c.c. for female skulls. The male skulls from Ur had an estimated capacity of 1,423 c.c., being 74 c.c. less than in the earlier inhabitants from al-'Ubaid. In the corresponding female groups the capacities are almost the same—1,328 c.c. in the al-'Ubaid group and 1,320 c.c. in the Ur group—these amounts being approximations for the mean of modern English women. Dr. Morant estimates the capacity of the male Kawāmil skulls at 1,476 c.c.—about the same as that of the ancient Sumerians and about 100 c.c. above that of other measurements made on predynastic male Egyptians.

Summary of Inferences Drawn from Cranial Dimensions. The ancient Sumerians were a large-headed, large-brained people, approaching or exceeding in these respects the longer headed races of Europe. They had many points of resemblance to a predynastic people whose remains have been found in cemeteries of Upper Egypt—one which differs considerably from all other Egyptians ancient and modern. There is evidence, when the crania found at al-'Ubaid—which is only four miles from the site of Ur—are compared with those obtained from beneath the 'Tomb Mound' of Ur, that there had

been a considerable change in the composition of the people of Babylonia between the beginning of the fourth millennium B.C. and the beginning of the second millennium, the al-'Ubaid crania representing people of the earlier date and Ur crania those of the later date. The most likely explanation of this change is an invasion of Babylonia by a people with long, narrow, and high heads which were in an evolutionary sense related to, but more primitive than the first Sumerian inhabitants of Mesopotamia. The homeland of such a race of invaders is more likely to have been the Arabian peninsula than any other land. In their cranial characters these invaders seem to have been nearer to the long-barrow people of England and to the Kawāmil people of Egypt than were the older Sumerian type found at al-'Ubaid. There is no evidence of the presence of any people of Mongol affinities nor of any showing the characteristic Armenoid form of head.

Facial Characters. In the recognition of the racial origin of the men and women we meet with in everyday life we depend very largely on their facial characters. Colour of skin and texture of hair certainly assist us, but in the present instance we can get no help from them and have to depend on such facial outlines as are retained by skulls. It is not often that anthropologists are able to deal with the face as a whole; the lower jaw is so often missing, leaving doubt as to how the face was completed below. Fortunately in the present instance we have the lower jaw to guide us. In Table II, column C, are given the total lengths of the face—measured from the nasion at the root of the nose to the lower border of chin or symphysis. To afford the reader a standard to guide him I may state that the face of the average Englishman, when measured thus, is about 123 mm. long; they are long-faced. In the al-'Ubaid men the mean length of the face was 118 mm.—apparently 5 mm. shorter. To this amount, however, to make the two measurements comparable we have to add 4 or 5 mm. to the measurements of the al-'Ubaid faces to make good the reduction brought about by the extreme wear of the front incisor teeth. Thus in length of face the young Sumerians were not unlike the modern English. The mean length of their face was above that of ancient Egyptian males (117 mm.) and above the mean of Panjābis (120 mm.). The three men of Ur had very long faces, the mean being 128 mm. As usual the woman's face was considerably shorter, the mean for the al-'Ubaid women being 104 mm. The total length of the face is made up of two elements—the upper or nasal, measured from nasion to the lower border of the nasal opening, and a lower, the maxillary, extending from the nasal sill to the lower border of the chin. One race differs from another in the relative size of the nasal and maxillary parts of the face—a fact which is daily open to our observation. The height of the nasal part is given in Table II, column A; the mean for the al-'Ubaid men was 54 mm.; for the three men of Ur, 54·6 mm.; we are therefore dealing with a long-nosed people. It is a striking fact that the predynastic Egyptian of Kawāmil was equally long-nosed (53·3 mm.), while in ancient Egyptians the corresponding mean was usually about 50 mm., although in an exceptional group of skulls, such as that from the Royal Tombs, it might be as much as 53·7 mm. Here, too, we

TABLE II. MEASUREMENTS OF THE FACIAL PARTS OF SKULLS

	Lengths				*Widths*								*Orbit*	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
No. I male	51·5	68	113	34	26	103	110	126	90	97	95	24	35	—
„ II „	52	(63)	108	32	29	103	110	123	94	96	96	26	35	40
„ III „	59	77	130	34	24·5	101	112	123	93	99	95	25	34	41
„ IV „	(50)	68	113	37	26	110	120	136	88	95	99·5	26	30	39
„ V „	54	—	—	37	(26)	(108)	—	(130)	—	100	—	—	—	—
„ VI „	54	72	122	37	24	—	114	(126)	90	(100)	98	—	—	—
„ VII „	54	75	123	39	25	102	115	130	94	105	95	24	—	—
Means	**54**	**72**	**118·1**	**35·7**	**25·7**	**103·8**	**113·5**	**127·6**	**91·5**	**98·6**	**96·5**	**25**	**33·6**	**40**
No. 1 male	55	76	—	—	28	108	118	135	103	—	101	28	36	40
„ 2 „	55	78	130	34	24	106	113	128	93	(95)	99	24	35	40
„ 3 „	54	76	126	35	28	106	118	134	105	(98)	99	25	37	40
Means	**54·6**	**76·6**	**128**	**34·5**	**26·6**	**106·6**	**116·3**	**132·3**	**100·3**	—	**99·6**	**25·6**	**36**	**40**
No. VIII female	46	63	102	30	24	97·5	109	127	94	96	88	24	31	36
„ IX „	51	66	107	31	23·5	96	106	118	90	93	88	24	34	39
„ X „	50	63	104	26	24	(99)	109	123	84	90	98	24	31	36
„ XIII „	—	—	—	37	—	—	—	—	—	—	—	27	—	—
„ XV „	(45)	(65)	103	32	22	—	—	—	—	(82)	—	25	—	—
Means	**49**	**64**	**104**	**31·2**	**23·4**	**97·5**	**108**	**122·6**	**89·4**	**93**	**91·3**	**24·8**	**31·6**	**37**
No. 4 female	46	65	111	33	24	101	106	120	95	94	95	25	31	39
„ 5 „	—	—	—	—	25	99	—	—	—	—	90	—	—	—
„ 6 „	—	—	—	—	23	—	—	—	—	—	—	—	—	—
„ 7 „	—	—	—	—	25	97	—	—	—	—	90	—	—	—
Means	**46**	**65**	**111**	**33**	**24·2**	**99**	**106**	**120**	**95**	**94**	**91·6**	**25**	**31**	**39**

Roman numerals refer to al-'Ubaid specimens.
Arabic numerals refer to Ur specimens.

A. Nasal height.
B. Naso-alveolar height.
C. Naso-mental height.
D. Height of symphysis.
E. Nasal width.
F. Supraorbital width.
G. Bimalar width.
H. Bizygomatic width.
I. Bimaxillary width.
J. Bigonial width.
K. Biorbital width.
L. Interorbital width.
M. Orbital height.
N. Orbital width.

come across a point which distinguishes the long-barrow people from the ancient Sumerians; in the long-barrow skull the mean length of the nasal part of the face is 50 mm.; in long-headed Neolithic French, 51 mm. In the ancient Mesopotamian skulls (male) the nasal part forms 44 per cent. and the maxillary 56 per cent. of the total length of the face; in ancient Egyptian skulls, the corresponding proportions are almost the same—43·6 per cent. and 56·4 per cent.; in skulls of modern Englishmen the corresponding figures are 41 per cent. and 59 per cent. The lower or maxillary part of the human face is made up of three parts—the depth of the lower jaw at the chin, the depth of the upper jaw below the nasal opening, and the intervening space occupied by upper and lower teeth. The depth of the symphysis of the lower jaw gives a racial characteristic. This measurement is given for the al-'Ubaid and Ur skulls in Table II, column D. The mean for the first group is 35·7 mm.; rather less in the second group—34·5 mm. They had heavier chins than the ancient Egyptians (in whom the mean was 33·2 mm.) and rivalled in depth the English chin with a depth of 35 mm. There is a widely held opinion that depth of chin indicates force of character, and if this be really true, the Sumerians can claim that quality. In the women also the

nasal part of the face was relatively long, but, as is usually the case in women, their lower jaws were much less heavily made.

In Table II, column B, another face length is given—that which is usually named the upper face length, and is measured from the nasion at the root of the nose to the margin of the jaw between the two upper central incisors. It includes the nasal element and the upper incisor part of the maxillary. The measurements given in column B bear out all that has been said about the relative and absolute length of the upper part of the Sumerian face.

The Facial Widths. Anthropologists register the width of the face by taking a measurement between the most projecting parts of the zygomatic arches. To give the reader a standard for comparison, I may say that this width in the skulls of Englishmen amounts in the mean to 130 mm.; in Englishwomen to 121 mm.; in Panjābis it is 132 mm.; and in the Chinese 134 mm. In the al-'Ubaid male skulls it was only 127·6 mm.; they are narrow-faced; in the three men of Ur it was considerably more—132·3 mm. Widely set zygomatic arches in a narrow-headed people are marks of a primitive or untamed nature. In the facial characters of the Ur skulls, their great length and width and also, as we shall see presently, their widely set cheek-bones, give further support to the thesis that Ur had been invaded in the third millennium by a more primitive people but of a breed akin to the original. The Kawāmil type of predynastic Egyptian had also the same widely set zygomatic arches (132 mm.) as the men of Ur. In other predynastic Egyptians the mean bizygomatic width is usually about 126 mm.; in skulls from the Royal Tombs it was more—namely about 130 mm. This was also the amount in long-barrow men. In the al-'Ubaid women the face at its widest point measured 122·6 mm.—a little more than in Englishwomen.

Among the various elements which make up the width of the face the most important for the identification of races is the width of the nasal opening. Englishmen in the mean are narrow nosed; the mean width of the nasal aperture is a fraction above 24 mm.; this was also so in the long-barrow Englishmen. In the al-'Ubaid males the opening is wide—25·7 mm.; in the Ur males 26·6 mm. Their noses were long and wide—a character of Iranian and Semitic races. In the Kawāmil predynastic Egyptians the nasal width was only 24·3 mm.; in other predynastic Egyptians 25 mm. is a common mean; in skulls from the Royal Tombs the mean nasal width was 25·5 mm. In the al-'Ubaid women the nasal width was almost the same as in Englishwomen.

Another width measurement, given in Table II, column I, is also important as it gives an indication of prominence of cheeks. It is taken between the lower ends of the sutures which separate the cheek bones from the upper jaw. It really gives the maximum width of the upper jaw; the wider it is the stronger are the parts concerned in mastication. This maxillary width in male English skulls has a mean of 91 mm.; in female skulls 85 mm.; in ancient Egyptians—dynastic and predynastic—the mean is about 96 mm. In the al-'Ubaid men the maxillary width was 91·5 mm.—about the same as in Englishmen; in the three men of Ur it was much more—namely

100·3 mm.—another indication of their robust maxillary development. In the al-'Ubaid women the maxillary width was 89·4 mm.—distinctly more than in Englishwomen.

The shape of the human face as seen in a front view depends on its width below and in front of the ears. The angles of the jaws may be prominent and far apart as in square faced primitive human races, or they may fall in, giving the face its soft oval outline, seen in peoples who have been long under the influences of civilization. These bigonial measurements are given in Table II, column J. The Sumerians had not prominent jowls; the mean width for the al-'Ubaid men was 98·6 mm.; in the three men of Ur, unfortunately, this measurement could not be made with any degree of precision. English skulls have a bigonial width of 99 mm.; ancient Egyptians, according to the series measured, 93–5 mm. The Sumerians were altogether a longer, narrower, and stronger faced race than the ancient Egyptians.

Another facial character which deserves consideration is the modelling of the lower forehead and the prominence of the various elements of the supra-orbital ridges. To measure the exact forward prominence of these ridges in the various races of mankind requires an elaborate technique, but there is one simple and easy way of broadly registering their general development. The more the supraorbital ridges are developed the wider they become. Hence their total width, measured between their outer ends, over the fronto-malar junctions, gives an indication of their absolute size. These supraorbital widths are given in Table II, column F. In the skulls of Englishmen the mean supraorbital width is 106 mm.; in the al-'Ubaid skulls it is less—103·8 mm.; in the Ur skulls it is 106·6 mm.—about the same as in Englishmen. In skulls of the Kawāmil predynastic type it is also approximately the same—105·4 mm.—while in other series of predynastic and dynastic Egyptian skulls the supraorbital width is only 99 mm. We again see a relationship of the Kawāmil predynastic type to the ancient Mesopotamian, and of both to the long-headed races of Europe. Perhaps an even better way of indicating the degree of development of supraorbital ridges is to compare their widths with that of the forehead at its minimal diameter. In the al-'Ubaid male skulls the supraorbital width exceeds the minimal frontal by 6·8 mm.; in male English skulls the corresponding excess is 7·1 mm.; in dynastic Egyptians it is only 5·6 mm.; in the Ur skulls the excess is large—namely 9 mm.—showing their robust development. The excess is the same amount in the Kawāmil predynastic skulls. In women the excess is less—relatively and absolutely. In the female al-'Ubaid skulls it is 6·5 mm. In this feature we see the toned down development of the men of al-'Ubaid, the robustness of their successors—the men of Ur—and the wide difference of both from all Egyptians save the peculiar and apparently alien type described by Dr. Fouquet.

There is still another feature in the width measurements of the face which deserves notice. As is well known, that part of the frontal bone which projects downwards between the orbits and affords a basis for the root of the nose is wide in Negro skulls. The width of the interorbital process has been measured in various ways, the right way being to measure its width just

above the flat part of the lachrymal bone. This measurement of the Mesopotamian skulls is given in Table II, column L. In Negro and negroid skulls the mean interorbital width varies between 27 mm. and 28 mm. In early dynastic male Egyptian skulls it measures 26·5 mm., in skulls of Englishmen 26·2 mm., in the al-'Ubaid male skulls 25 mm., in the male Ur skulls 25·6 mm. These Sumerians were not wide but narrow between the eyes. The interorbital width must also be considered in connexion with the orbital width as measured between the lower or inner ends of the fronto-malar sutures. The biorbital widths are given in Table II, column K. In English male skulls this width is 97·7 mm., the interorbital width 26·2 mm., which being subtracted from the biorbital width gives the true orbital width—namely 71·5 mm. In the male skulls from al-'Ubaid the corresponding amounts are 25 mm., 96·5 mm., 71·5 mm., the same orbital width as in English skulls. In the Ur skulls the amounts are larger—namely 99·6 mm., 25·6 mm., 74 mm. In the skulls of ancient Egyptians the corresponding measurements are 26·5 mm., 98·4 mm., 71·9 mm. Only one of the above series is really primitive—that which represents the men of Ur. Dr. Fouquet has measured the interorbital widths of the Kawāmil predynastic Egyptians in a different way—namely between the inner or mesial borders of the lachrymal grooves. These Kawāmil people were narrow between the eyes, the mean interlachrymal width being 21·1 mm. In the al-'Ubaid male skulls it was even less, being 20·2 mm., while in the male Ur skulls it was 21·6 mm., almost the same as in the predynastic Egyptians found at Kawāmil.

Before leaving the width characters of the face I may mention one other measurement because it is instructive. On the temporal border of the cheek bone there is a rounded angle between its descending and horizontal parts. The measurements given in Table II, column G, represent bimalar widths taken between these angles. The bimalar width in the skulls of Englishmen —who are relatively narrow faced—is 111·6 mm.; in dynastic Egyptians rather less—111·1 mm.; in Chinese skulls, 110 mm. On the other hand the Sumerian faces were wide at this point, the male skulls from al-'Ubaid being 113·5 mm., and the Ur skulls, 116·3 mm. In this, as in all cranial measurements, the female skulls yield much lower amounts than the male.

Orbital Measurements. These given in column M (heights) and column N (widths) relate to the left orbit, with two exceptions. The width of the orbit depends on many factors. The dimensions of the al-'Ubaid orbits of the male skull are :—height 33·6 mm., and width 40 mm. (measured from the dacryon), being almost identical with those taken on skulls from the Royal Tombs of Egypt. These are slightly larger than in other Egyptian skulls in which the mean height of the orbit varies between 32 mm. and 33 mm., and the width between 39 mm. and 40 mm. The orbits of the Ur men have a high vertical measurement, 36 mm., being in this unlike the long barrow skulls in which the mean orbital height is 31·8 mm. and the width 39 mm. The orbits of the Kawāmil predynastic males had a height of 33·2 mm. and a width of 39·2 mm. The high orbit of the men of Ur is correlated with the great length of their face.

The Face in Profile. We have been inquiring into the characteristics of the faces of ancient inhabitants of Mesopotamia as seen in a full front view; we now turn to an even more instructive aspect—that seen in true profile. When we look at the living human head from the side we see that the ear passage separates it into two parts—a part in front, the preauricular, to which the jaws and face are attached, and a part behind, the postauricular, to which the neck is attached. The extent of each part depends on the poise of the head. For example, the exact profile drawings given of eight of the al-'Ubaid skulls in Plates LXIII–LXVIII show the head poised on the subcerebral plane, one which I find useful for bringing out many of the characteristics of the brain-containing part of skulls. In this plane the skull is tilted more forwards than in the Frankfort plane which is in almost universal use. In the Frankfort plane the lower margins of the orbits are raised to the level of the upper margins of the ear passages, the preauricular proportion of the head becoming less and postauricular greater. For the study of the face and neck the Frankfort plane is preferable, and hence the measurements given in Table III concerning preauricular and postauricular dimensions are those which were made on this plane. If craniologists will publish exact drawings in true profile of the skulls they describe, it matters little what plane they adopt; one can then apply any plane to such drawings and thus make them serve every purpose of study.

TABLE III. FACIAL MEASUREMENTS IN AN ANTERO-POSTERIOR PLANE

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
No. I male	96	99	111	106	70	86	93	97	91	97	99	100	101	71
„ II „	102	100	106	100	72	89	88	100	90	96	—	—	95	70
„ III „	100	93	97	101	71	92	95	103	93	98	95	99	99	69
„ IV „	87	100	97	101	67	78	83	87	85	(90)	92	90	91	71
„ V „	(96)	97	—	—	—	—	—	—	—	—	—	—	—	—
„ VI „	—	—	—	—	—	—	—	—	—	—	—	—	—	—
„ VII „	93	94	109	109	73	83	92	100	99	106	110	109	107	70
Means	**95·6**	**97·2**	**105·7**	**104**	**70·6**	**85·5**	**90·2**	**97·6**	**91·6**	**97·4**	**99**	**99·5**	**98·6**	**70·2**
No. 1 male	105	99	119	106	73	92	103	107	100	103	105	—	—	72
„ 2 „	88	96	(102)	(95)	63	79	87	92	83	88	88	76	74	60
„ 3 „	94	100	102	90	69	85	91	96	84	86	88	86	82	62
Means	**95·7**	**98·4**	**107·6**	**97**	**68·4**	**85·3**	**93·6**	**98·4**	**89**	**92·3**	**93·6**	**82**	**78**	**64·6**
No. VIII female	92	90	(98)	(98)	67	79	86	89	85	92	93	87	87	68
„ IX „	87	90	97	—	64	79	86	92	83	89	91	85	85	61
„ X „	82	100	90	88	63	74	80	83	76	81	84	84	86	60
„ XIII „	98	87	—	—	—	—	—	—	—	—	—	—	—	—
Means	**90·2**	**91·7**	**95**	**93**	**64·6**	**78·2**	**84**	**88**	**81·3**	**87·3**	**89·4**	**85·2**	**86**	**63**
No. 4 female	90	97	97	90	65	81	89	93	84	84	90	85	78	62
„ 5 „	86	101	—	—	—	—	85	—	—	—	—	—	—	—
„ 6 „	90	100	—	—	—	—	93	—	—	—	—	—	—	—
„ 7 „	95	80	—	—	68	—	—	—	—	—	—	—	—	—
Means	**90·2**	**94·5**	—	—	**66·5**	—	**89**	—	—	—	—	—	—	—

A. Preauricular length.
B. Postauricular length.
C. Basi-nasal length.
D. Basi-alveolar length.
E. Projection of lateral orbital margin in front of mid-auricular plane (Fig. 78).
F. Projection of lachrymal margin of orbit.
G. Projection of nasion.
H. Projection of ascending nasal process of maxilla (Fig. 78).
I. Projection of lateral nasal margin.
J. Projection of subnasal point.
K. Projection of upper alveolar point.
L. Projection of lower alveolar point.
M. Projection of mental point.
N. Projection of malo-maxillary point.

The most outstanding feature of the Sumerian head was its great length:

the glabella of the forehead, in the five male skulls from al-'Ubaid, lay 95·6 mm. in front of a vertical plane passing through the middle of the ear passages—the transauricular plane; the most backward projecting point of the occiput lay 97·2 mm. behind it; 49·6 per cent. of the skull was thus preauricular. The three male skulls from Ur show a similar relationship. We see a tendency in the ancient Mesopotamians, one which is noticeable in living Arabs, for the head to grow in a postauricular direction. In a group of male Egyptian skulls, ten in number, taken at random from a series belonging to the Fourth Dynasty, the preauricular part measured 92·7 mm., the postauricular 91·7 mm., in this case the preauricular part being only a millimetre the greater. In a group of male Negro skulls, also ten in number, the ear passages were situated exactly at the mid point. In a similar group of male Panjābi skulls, on the other hand, the glabella projected 98·7 mm. in front of the transauricular plane, the preauricular segment of the skull being 53 per cent. of its total length. The people of the English long barrows present many points in common with the Sumerians. In *Crania Britannica* there are exact drawings of eight skulls of long barrow men; in this group the glabella projected 102·2 mm.—nearly 7 mm. more than in the Mesopotamian skulls—in front of the transauricular plane, and formed 52·5 per cent. of the total length of their skulls. How far the position of the ear is to help us in unravelling the relationship of races remains to be ascertained; we see that in this matter the Sumerians differed from the ancient Egyptians—with perhaps the exception of the Kawāmil predynastic type. But whether the position of the meätus in the total length of the skull turns out to be a reliable racial guide or not, there can be no doubt that the absolute length of the preauricular part is of vital importance in the study of the face—for it is to this part of the skull that the face is fixed. The amount to which the jaws project forwards—the degree of prognathism—will depend upon the length of the preauricular part; if it be long it may overhang large jaws and thus mask all traces of prognathism. It is due to this fact, more than to a reduction in the jaws themselves, that the Caucasian type of man has become orthognathous. The Sumerian is of this type, whereas the ancient Egyptian tends towards the negroid type.

In Table III, columns C, D, two other measurements are given of the profile of the face. One, the basi-nasal, made from the hinder end of the basilar process (basion) of the occipital bone to the nasion at the root of the nose, gives a measure of the oblique line of attachment of the face to the base of the skull. The other, the basi-alveolar, gives the distance of the anterior margin of the upper jaw from the basion. In the male skulls from al-'Ubaid the basi-nasal length is great, namely 105·7 mm., and the basi-alveolar length is also great, namely 104 mm. Miss Fawcett found the corresponding measurements in predynastic Egyptians to be 99·3 mm. and 94·7 mm., the first being 6·5 mm. and the second 9·3 mm. less than in the Mesopotamian skulls. In the three skulls from Ur the basi-nasal length will be seen to be even longer than in the al-'Ubaid skulls, with, however, a smaller forward projection of the jaws. Dr. Fouquet found a basi-nasal length of 105·5 mm.

in the predynastic Kawāmil skulls—another point which links this type with the Sumerians and separates it from all other predynastic Egyptians. The basi-nasal length of male long-barrow skulls was also great—104·9 mm.—rather less than in the Sumerians. This difference is chiefly due to a point we shall have to mention later—namely the high and forward position of the root of the Sumerian nose. We are all familiar, through the statuary of ancient Greece, with the nose which comes high and straight from the forehead. This character is found among various peoples, from the Panjābi in the East to the Greeks in the West, and is often seen in Sumerian skulls.

The late Sir William Flower contrasted the basi-nasal and basi-alveolar lengths and used the difference between them to express the degree of prognathism. The more the basi-alveolar length exceeded the basi-nasal, the greater he counted the degree of prognathism. The distance of the anterior alveolus of the upper jaw from the basion—104 mm.—is quite remarkable in the al-'Ubaid skull, but it is 1·7 mm. less than the basi-nasal length. In the skulls of modern Arabs the basi-alveolar length is also great, namely 100·6 mm.; in the same group of Arab skulls the basi-nasal length was 104 mm.—wherein we see that the modern Arab clings to Sumerian features. In a group of five male skulls from the Panjāb the basi-alveolar distance measured 100 mm., the basi-nasal 103 mm. From these measurements it will be seen that the Sumerians had deep faces as measured from back to front and big jaws, but the size of their jaws was masked by the forward projection of the nasal and orbital parts of their faces.

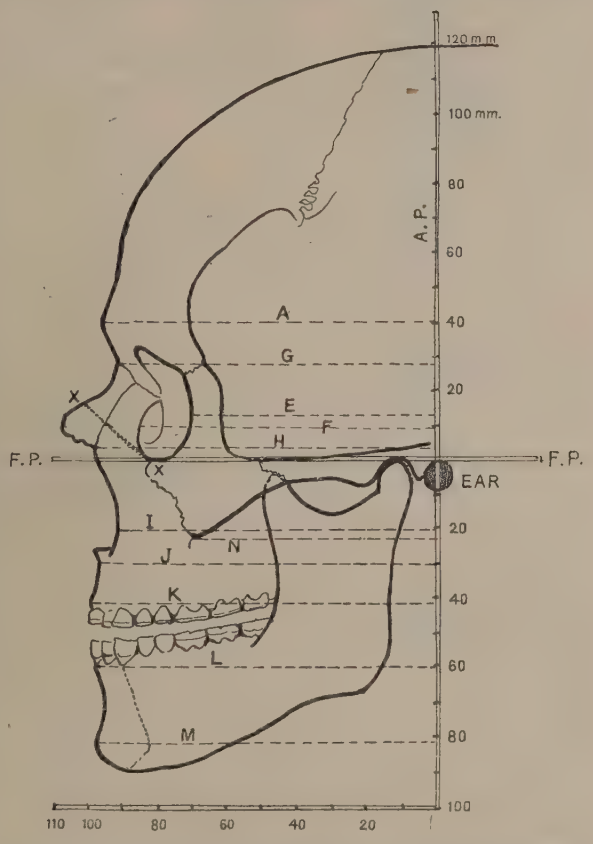

FIG. 78. Composite drawing of five of the al-'Ubaid skulls—those reproduced in Plates LXIII–LXVI. Lines indicated by the letters A, E, F, G, &c., correspond to columns of measurements given in Table IV. F.P., Frankfort plane; A.P., auricular plane; X, X, line for measuring prominence of nose.

The Sumerian Profile. The craniological methods at present in use fail to bring out the racial characters as seen in a profile of the face and head. The late Sir Francis Galton realized that a system of measurements which would bring out the features was an urgent necessity and sought for a shorthand method of registration. After prolonged search, and repeated trials, I have

come to the conclusion that there is no easy method; the only possible way is that represented in Fig. 78, wherein is reproduced a composite profile of five male skulls from al-'Ubaid. It is really a concrete representation of the mean of a long series of measurements, some of which are given in Table III. A corresponding drawing, made from a random group of ten male skulls of Egyptians of the Fourth Dynasty, is reproduced in Fig. 79. A comparison of these two drawings (Figs. 78 and 79) reveals the many minor points in which the Sumerian and Egyptian profiles differed from each other. They are differences not only in dimensions but in the relative size of parts. Particularly are the differences in the nose and the lower forehead noticeable. I must also add that the aquilinity and prominence of the Sumerian nose is exaggerated in my drawing (Fig. 78), because only in three al-'Ubaid skulls were the nasal bones approximately intact, and in all of them it happened that the nose had that pronounced form of aquilinity which is usually named Hebraic. An example of the Sumerian nose taken from a much broken skull (No. XIV, C. 40) is reproduced in Fig. 80.

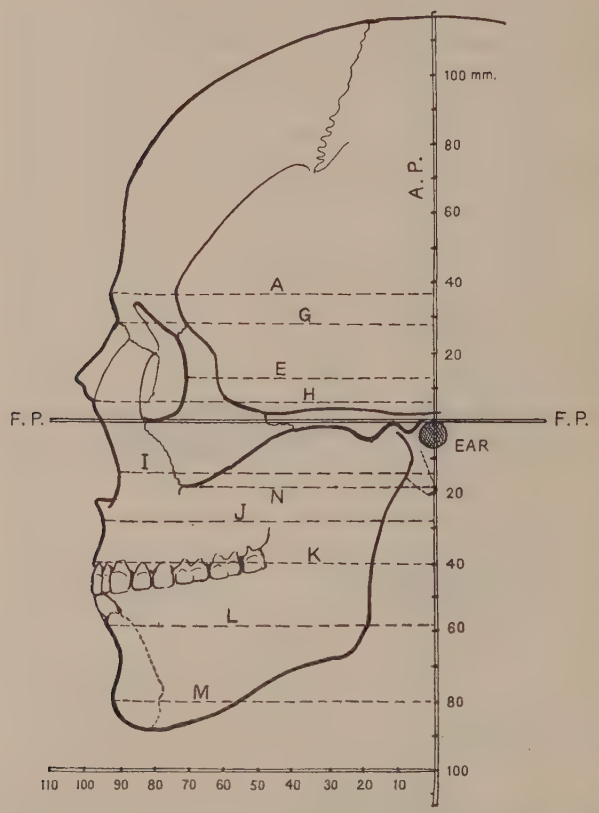

FIG. 79. A composite profile of ten male skulls of Egyptians of the Fourth Dynasty, for comparison with the Babylonian profile given in Fig. 78.

In Fig. 78, a bar of bone, the zygomatic arch, is seen to spring from the side of the skull in front of the ear and pass forwards to end in the cheek. It turns upwards to form the outer margin of the orbit, while below it ends at a point known as the lower malo-maxillary junction. The distances which the outer margin of the orbit and the malo-maxillary point reach in front of the middle of the ear passages—the trans-auricular plane—give the depth of the lateral wall of the face in a front to back direction. In the male al-'Ubaid skulls the orbital margin is 70·6 mm. in front of the meatal plane; in the three skulls from Ur it is much less, namely 68·4 mm. Now these measurements represent relatively and also absolutely small amounts. In modern Panjābi skulls the margin of the orbit is 73 mm. in advance of the transauricular plane; in long-barrow skulls 72·7 mm.; in male Negro skulls 71 mm.—the same as in the skulls of early dynastic Egyptians. In skulls of modern

Englishmen the orbital projection is 69·8 mm. approximately—the same as in the Mesopotamian skulls. In this we see one of the factors which gave the ancient Sumerian his flattened cheek bones. The distance between the margin of the orbit and the ear covers the space occupied by the temporal muscle of mastication and its amount is an imperfect indication of the development of that muscle.

The distance of the malo-maxillary point in front of the ear is even more important; the longer it is, the more are the cheeks prominent in a forward direction. This distance also covers the origin of the masseter muscle of mastication and serves as an indication of the development of that muscle. The forward projection of the cheek bone is given in Table III, column N, and the mode of estimation in Fig. 78 (N). In male Negro skulls the forward projection of the cheek bone is 73 mm.; in Chinese skulls, 71·2 mm.; long-barrow skulls, 71·1 mm.; skulls of Panjābis, 70 mm.; ancient Egyptians, 72 mm. In the large al-'Ubaid skulls the forward projection is only 70·2 mm. and much less in the three skulls from Ur—namely 64·6 mm. In modern English skulls the malar projection is 68 mm., Englishmen being notoriously flat-cheeked. From these facts we see that retraction of the cheek-arches was already pronounced in these Sumerians—just as they now are in most modern Englishmen. One is, on this slender ground, tempted to suppose that Mesopotamian culture was already ancient in the fourth millennium B.C., for high and prominent cheek bones are primitive marks, and in some races at least they become toned down under prolonged conditions of civilized life.

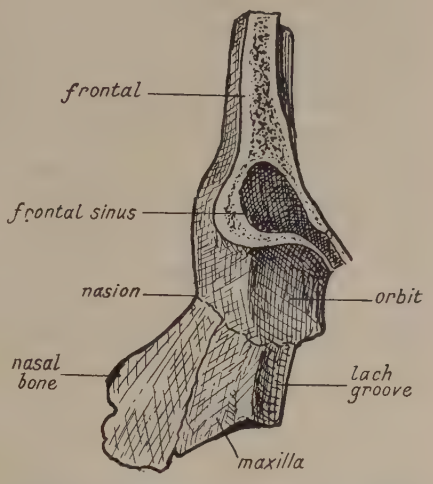

FIG. 80. A drawing in true profile of a fragment of the frontal bone with the root and the bridge of the nose attached. From a male skull found at al-'Ubaid (nat. size). (No. XIV, C. 40.)

Projection of Nasal Structures. We recognize a wide range in the prominence of facial features amongst the individuals of every race. Amongst Caucasian races there is, in particular, a wide range in the degrees to which the nose and associated structures project in front of the outer margins of the orbits. Some racial types, particularly the Mongolian, are flat-faced, but this may be attained in two ways. The outer margins of the orbits may project farther forwards than is usual, or there may be a retrocession of the middle parts of the face, including the nose. The flattening of the Chinese face has come about by the operation of both of these factors. The outer margin of the orbits stand 73 mm. in front of the ear-plane—several millimetres more than in the Sumerian skulls (see Table III, column E). But the nasion, at the root of the Chinese nose, lies only 16 mm. in advance of the orbital margins, whereas in Sumerian skulls (see Table III, column G) the corresponding distance is 19·6 mm. for the al-'Ubaid specimens and 25·2 for the three male skulls from Ur. The female face, in the mean, is usually flatter than that

of the male; but the projection of the nasion in the female skulls from al-'Ubaid was 19·4 mm., almost as much as in the males. In a group of Egyptian skulls of the Fourth Dynasty the nasion lay 19·5 mm. in front of the orbital margin —almost the same as in the al-'Ubaid skulls; in the English male skull the corresponding figure is 21·8 mm.

The amount which the glabella advances beyond the orbital margins gives us a measure of the forward projection of the median parts of the face, and compared with the advance of the nasion, an exact means of estimating the depth of the notch or hollow which separates the root of the nose from the forehead. In the al-'Ubaid males the glabella lay 25 mm. in advance of the orbital margins and 5·4 mm. in advance of the nasion; in the male skulls from Ur, the advance of the glabella was 28·3 mm. in front of the orbital margin and 3·1 mm. in front of the nasion. The corresponding advances in dynastic ancient Egyptian skulls were 21·7 mm. and 2·1 mm., the glabellar advance being much less than in the Mesopotamian skulls and the recess at the nasion shallower. In male English skulls the glabellar advance is 24·8 mm., being 3 mm. in front of the nasion. In all of these features we see that the Sumerians had no trace of the flattening of face noticeable in Mongolian peoples, and in all the points in which they differ from the ancient Egyptians they make an approach to the Caucasian or European type. They were a people with sharp or wedge-shaped faces in contradistinction to flat-faced races.

The Sumerian Nose. We have seen that in width and height the nasal dimensions of the skulls from al-'Ubaid and Ur were similar to those of Semitic peoples. Even more characteristic features of the nose are brought out in a study of the profile of the skull. A prominent nose, standing high above the lower margins of the orbits and clearly demarcated from the cheeks is the latest and most characteristic of the features attained in the evolution of man, and finds its most emphatic expression in the races of the south-western part of Asia. There are three factors concerned in giving the nose its prominence in the human face. There is first a positive growth in the lower or distal parts of the nasal bones; there is, in the second place, a reduction in the forward growth of cheeks and jaws leaving the nose more exposed; and thirdly there is a tendency for the root of the nose to move forwards and upwards in common with a growth change which affects the interorbital region and the lower part of the forehead. All these factors are concerned in the production of the prominent aquiline nose. In the skull of the seven-year-old boy from al-'Ubaid the nose springs straight from the forehead in the manner of classical Greece; in eight of the fifteen skulls there was a tendency for the nose to continue without break the line of the fore-head; it occurred as often in the female as in the male skulls. Unfortunately the lower and characteristic parts of the nasal bones were missing in most cases; in four male skulls the width of the arch formed by these distal parts of the nasal bones was 14·8 mm. and the depth of their arch 9·7 mm. The width of the nasal bones at their narrowest parts in the al-'Ubaid male skulls was 11 mm. and the height of the arch formed by them was 4·6 mm. The male skulls from Ur gave similar measurements. Ryley and Bell (*Biometrika*,

1913, vol. 9, p. 391) report corresponding measurements for the nasal bones of ancient Egyptians, namely 10·4 mm. in width and 4·6 mm. in depth; and also for English skulls, 9·4 mm. in width and 4·7 mm. in height. In these respects the nasal bones of the three groups do not seem to differ greatly, yet measurements made at the distal parts of the nasal bones bring out characteristic differences. The best way of expressing the prominence of the nose is to measure its elevation above the lower margin of the orbits, just above the infra-orbital canal, as is indicated in Fig. 78, x, x. Measured in this way the nose in Negro skulls has a prominence of 18 mm., in British skulls of 24 mm., in Chinese skulls, 14·5 mm., in ancient Egyptian skulls 22·5 mm., in the al-'Ubaid males 26 mm., in the Ur males 28 mm. In ancient Roman skulls this measurement may rise to 36 mm.

One other point about the nasal orifice should be mentioned. In the full face views of the skulls, given on Plates LXIII–LXVIII, it will be seen in most of them that a linear ridge of bone crosses the sill of the orifice, joining the outer margin of the aperture to the nasal spine. In primitive human races this line is absent or incomplete, the floor of the nose passing by a grooved surface on to the outer aspect of the jaw, as is the case in the skulls of anthropoid apes. In modern European skulls there is a tendency for the line on the nasal sill to deepen so as to form a sharp bony barrier or ledge two or three millimetres in depth. In nine of thirteen Sumerian skulls dealt with here there were complete linear sills present, a much higher percentage than is found in a random sample of skulls of ancient Egyptians.

Size of the Jaws. The jaws of the Sumerians were large. This can be best indicated by giving the dimensions of the dental palate of six of the male skulls from al-'Ubaid. The length of the palate measured from the anterior borders of the two upper central incisors—or of their sockets, if these teeth are absent, to a line joining the hinder ends of the last pair of molar teeth was 51·8 mm.; the same measurement of a group of ten ancient dynastic Egyptian skulls gave 49·8 mm.; the corresponding dimension in English skulls is 48·8 mm. The width, measured between the outer borders of the canine teeth of the al-'Ubaid skulls, was 41·6 mm.—1·8 mm. more than in Egyptians; the width between the outer borders of the second pair of molars was 64·7 mm., 3 mm. more than the mean for Egyptians. The mean area of the al-'Ubaid dental palate was 28 cm². against 25 cm². for the Egyptian palate and 26 cm². for the palate of prehistoric Englishmen.

In spite of this large palate there is no evidence of prognathism when the Sumerian skulls are viewed in profile. We deem the people we meet with in everyday life as being prognathous or not according to the amount which the jaw projects in front of the openings of the nose. We may apply the same mode of measuring to skulls. In Fig. 79 a horizontal line (i) measures the distance of the lateral margin of the nose from the transauricular plane; the most backward point on the lateral nasal margin is taken as a base to measure the forward projection of the lower parts of the face. The individual measurements for the Sumerian skulls are given in Table III, column I. In the male al-'Ubaid skulls the nasal base lies 91·6 in advance; in the Ur males it is

much less, namely 89 mm., almost the same as in ancient Egyptian skulls; in British skulls the advance is still less, namely 87 mm. The median alveolar point of the upper jaw of the al-'Ubaid skulls is 7·4 mm. in front of the nasal base; 7·4 mm. is the measure of their prognathism; in the Ur skulls it is less—4·6 mm.; in Egyptian skulls it is more, namely 6·5 mm.; in English skulls less, namely 3·5 mm. Yet this high degree of prognathism in the al-'Ubaid skull is masked by a full development of the lower jaw and particularly of the chin, which like the nose marks in its prominence the highest specializations in the human face. The eminence of the chin in the al-'Ubaid male skulls lies 7 mm. in advance of the nasal base line (see Fig. 79), while in dynastic Egyptian skulls the advance is only 2 mm. In the skulls of modern Englishmen the eminence of the chin only reaches the nasal base line, a position which is due not to an absence of chin but to the elongation of the face and the consequent lowering of the mandible. As the chin sinks it necessarily falls backwards to a position nearer to the larynx, thus bringing the chin backwards. The prominence of the jaws and chin in the al-'Ubaid women corresponds exactly to that described for the men.

Characters of the Neck. The width of the neck is indicated by a measurement taken between the outer surfaces of the mastoid processes, at the upper level of muscular attachment. In the al-'Ubaid male skulls the mean bimastoid width was 126 mm., the same as in English skulls; in the three male skulls from Ur this diameter was slightly more—126·6 mm. In contrast to the bimastoid width of the Sumerians that of the ancient Egyptians was only 121·4 mm. This again brings out the greater massiveness and strength of the Sumerians. The bimastoid width in Panjābis is 124·5 mm., and in the al-'Ubaid women 125 mm., in Negroes 123 mm. The thickness of the neck from front to back is indicated by the distance at which the inion lies behind the transauricular plane, the distance being measured with the skull placed in the Frankfort plane. In the male skulls from al-'Ubaid the inion lay 80·8 mm. behind the midauricular point; the distance was slightly more in male skulls from Ur, namely 81·7 mm.; in the female al-'Ubaid skulls it was 76·5 mm.; the same measurement in male Egyptian skulls gave 78 mm.—again showing the slighter build of the necks of the ancient Egyptians. On the other hand a very curious distinction comes out between Sumerian and Egyptian skulls in the level of the inion. In the first this point, in the mean, lay 8·5 mm. below the level of the Frankfort plane, while in the second it lay only 5 mm. below, a condition which results from the highly placed position of the hinder part of the Egyptian head. Every one is familiar with the slender neck and poise of a boy's head; the adult Egyptian tended to retain this character of youthfulness, while the Sumerian tended in an opposite direction. The Sumerian had a thick neck and an occiput which became depressed as adult years were reached.

Certain other Cranial Measurements. I took many other cranial measurements, particularly of the arcs, chords, and subtenses of the frontal, parietal, and occipital bones along the median line of the skull, but obtained from them nothing which helps in the unravelling of racial problems. One has to

remember that such measurements depend on the thickness of cranial bones as well as upon the size of brain space, and the Mesopotamian skulls are thick along the roof. There is, too, an irregular relationship between the arc lengths of the parietal and occipital bones, which destroys any attempt to obtain representative means from a small number of skulls. The mean arc lengths for the al-'Ubaid male skulls were as follows: frontal 133 mm., parietal 136·5 mm., occipital 121·7 mm. How much these measurements stand above the mean for dynastic Egyptian skulls will be seen from the corresponding measurements given by Morant: frontal 126 mm., parietal 130·9 mm., occipital 115·1 mm.

The State of the Teeth. Dr. Buxton reports the extreme degree of wear to be seen in the teeth of the Kishites of the latter part of the third millennium. I have never seen in any race, ancient or modern, teeth worn to the degree shown by the men and women which Mr. Woolley unearthed at al-'Ubaid; the wear, making all allowance for the age of the individuals, was much less in the men and women of Ur who belonged to a later period in the history of Mesopotamia. When we search for the cause of the extreme wear I can see nothing which suggests that the hardness of the teeth themselves was at fault; we see that the pulp cavities have become filled up with secondary dentine as they became exposed. We must seek for an explanation of the wear of the teeth rather in the nature of their food; it is possible that dust or grit became mixed with their meal, either from imperfect cleaning of their grain or from the soft nature of their millstones. Abscesses at the roots of the teeth (gumboils) were frequent; but in the sixteen skulls from al-'Ubaid —or such parts of their jaws as were available for examination—I found only three traces of caries. Nor did I find any evidence of caries whatsoever in the teeth of the people of Ur; but in this group, although the wear of the teeth was much less than in the more ancient people of al-'Ubaid, the loss of molar teeth from abscesses was much greater.

In modern Europeans there is a tendency for the third molars or wisdom teeth to disappear; their crowns may form, but remain in the jaws unerupted, or they may fail to form. It is a remarkable fact that this tendency was already marked in the al-'Ubaid people. In one old male (No. I) a wisdom tooth remained uncut; in another (No. IV), three of the wisdom molars had failed to form. In one woman (No. VII) three of the wisdom molars had failed to develop.

The Skeleton of No. VIII (a woman). This was the only skeleton which was sufficiently intact for examination. Her right femur, measured in its greatest length, was 425 mm., hence we may infer that her stature was 1,550 mm. or 5 ft. 1 in. She was strongly built and muscular. The femur below the lesser trochanter has a width of 31 mm., a front to back diameter of 22 mm., the latter being 70 per cent. of the former—a proportion common in modern women. The total length of the right tibia was 364 mm.; if the malleolus is excluded, 354 mm. The front to back diameter at the nutrient foramen was 35 mm.; its transverse diameter, 27 mm., the latter being 77 per cent. of the former—also a common proportion. The length of the right humerus measured 304 mm., the right radius 240 mm., the right clavicle

132 mm. In the proportions and appearances of all her bones one is struck with their resemblance to those of modern European women.

Conclusion. I have to thank Sir Frederick Kenyon and Mr. Leonard Woolley for permitting me to examine and report on these ancient Mesopotamian skulls. Their preservation was due to the foresight of Mr. Woolley, and their reconstruction cost my assistant, Edward Smith, many months of care. I think their pains have been well spent, for of all the pioneers of civilization, the Sumerians, so far as concerns their racial origin and physical nature, remain the most obscure, and they deserve to be the best known, for it is probable that they have a better claim to be regarded as the founders of modern civilization than any other people. Hence I have entered with a degree of fullness into the details of their structure which may prove wearisome to those who read this report. As to the racial nature of the al-'Ubaid people there cannot be any doubt; if they were living to-day we should call them Arabs. It is possible that in no Arab community of to-day does there exist a group of individuals with such large heads, big brains, and massive jaws as those whose remains Mr. Woolley recovered at al-'Ubaid. Yet in the Arab skulls in the Museum of the Royal College of Surgeons there is one which belongs to comparatively modern times and nevertheless is a counterpart of the larger skulls from al-'Ubaid. Prolonged civilization does seem to exhaust every people; it has been so in Egypt, Greece, and Rome, and it has been so in Mesopotamia. There is no trace in the people brought back by Mr. Woolley of any round-headed element of the Hittite type nor of a Mongolian type. Yet Dr. Seligman, in the publication we have already noted (p. 215), has found ample evidence of brachycephaly amongst the modern natives of South Arabia; there are four round or brachycephalic Arab skulls in the Museum of the Royal College of Surgeons. When this strain reached southern Arabia is not known, but no trace of it has been found in the people who lived in or near Ur of the Chaldees in ancient times. The southern Mesopotamians at the beginning of the fourth millennium B.C. had big, long, and narrow heads; their affinities were with the peoples of the Caucasian or European type, and we may regard south-western Asia as their cradleland until evidence leading to a different conclusion comes to light. They were akin to the predynastic people of Egypt described by Dr. Fouquet, but differed from all other predynastic and dynastic Egyptians. The Neolithic people of English long barrows were also related to them—perhaps distantly; the Sumerian type made its appearance in Europe in Palaeolithic times, for one of the earliest of Aurignacian skulls—that found at Combe Capelle in the Dordogne, France—is near akin to the ancient Arab type.

There is evidence, too, that between the fourth and second millennia there was a change in the cranial features of the people of Ur. Yet the new arrivals were people of the same physical stock as the older inhabitants with whom they became mixed; the invader must have been a cousin people—one with smaller and narrower heads. Certainly, as physical anthropologists measure people, the later people of Ur were not the equals of the earlier people found at al-'Ubaid.

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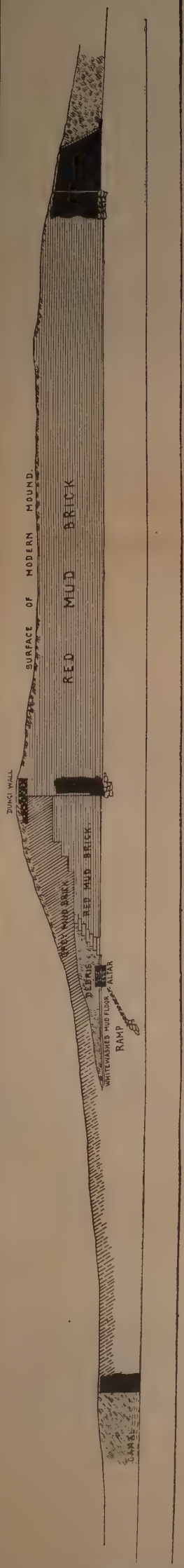
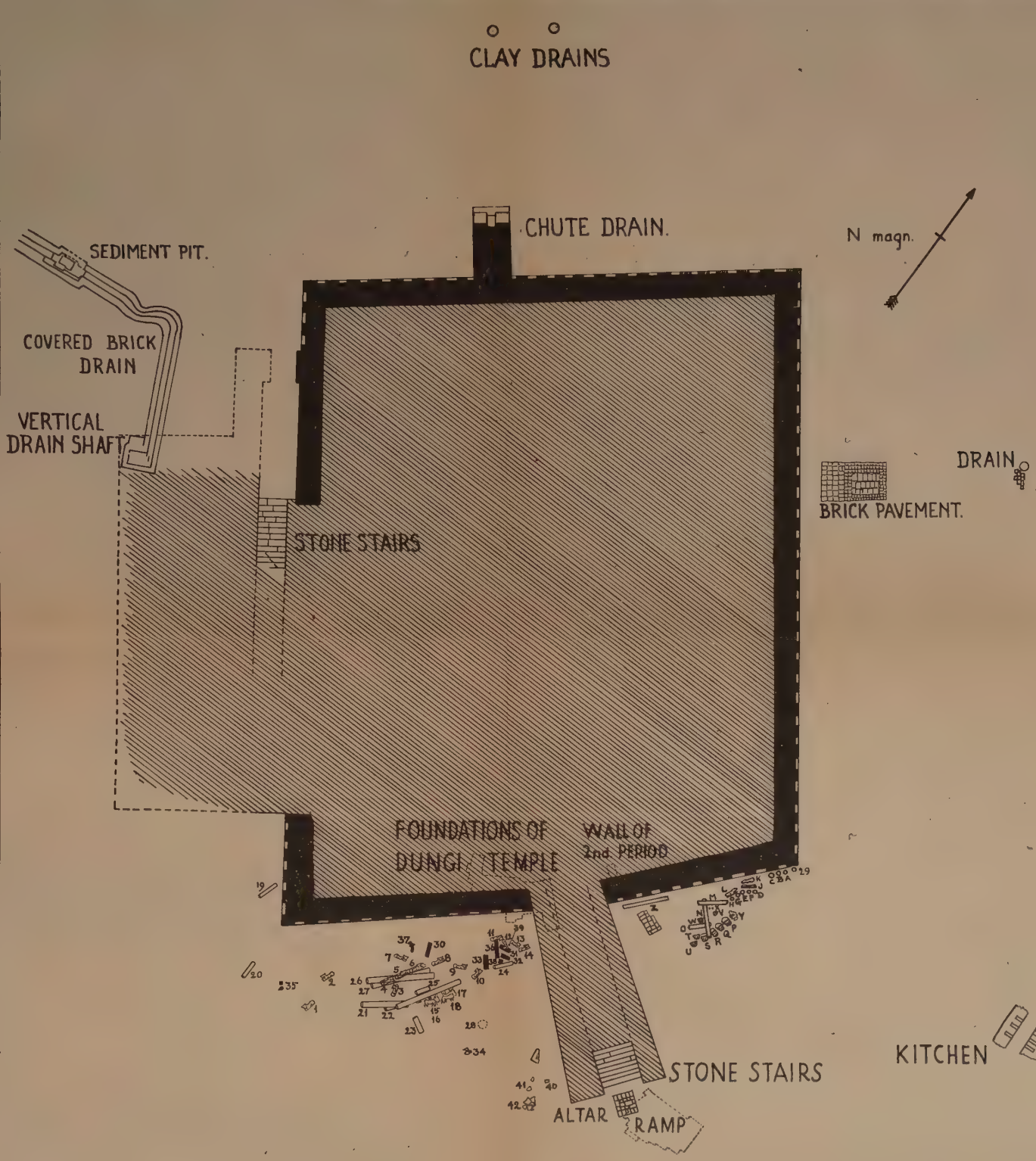
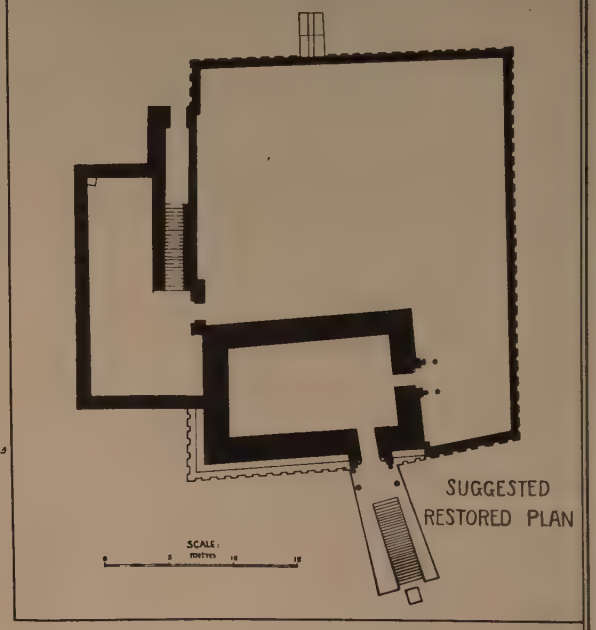




THE PLATFORM OF THE TEMPLE OF NIN-KHURSAG BUILT BY A-ANNI-PADDA AT AL-ʿUBAID

SCALE:
0 5 metres 10 15



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J-L	COPPER BULLS
M-O	COPPER-SHEATHED BEAMS
P-U	COPPER LIONS
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X	COPPER BIRD'S HEADS
Y	KURLIL STATUES
Z	IMGIG RELIEF

1923-4

1-14	COPPER BULL RELIEFS
15-18	COPPER BULL STATUES
19-25	COPPER-SHEATHED COLUMNS & BEAMS
26-29	MOSAIC COLUMNS & FRAGMENTS
30-33	MOSAIC PANELS OF BULLS
34-35	FRAGMENTS OF SIMILAR PANELS
36	PANEL WITH MILKING SCENE
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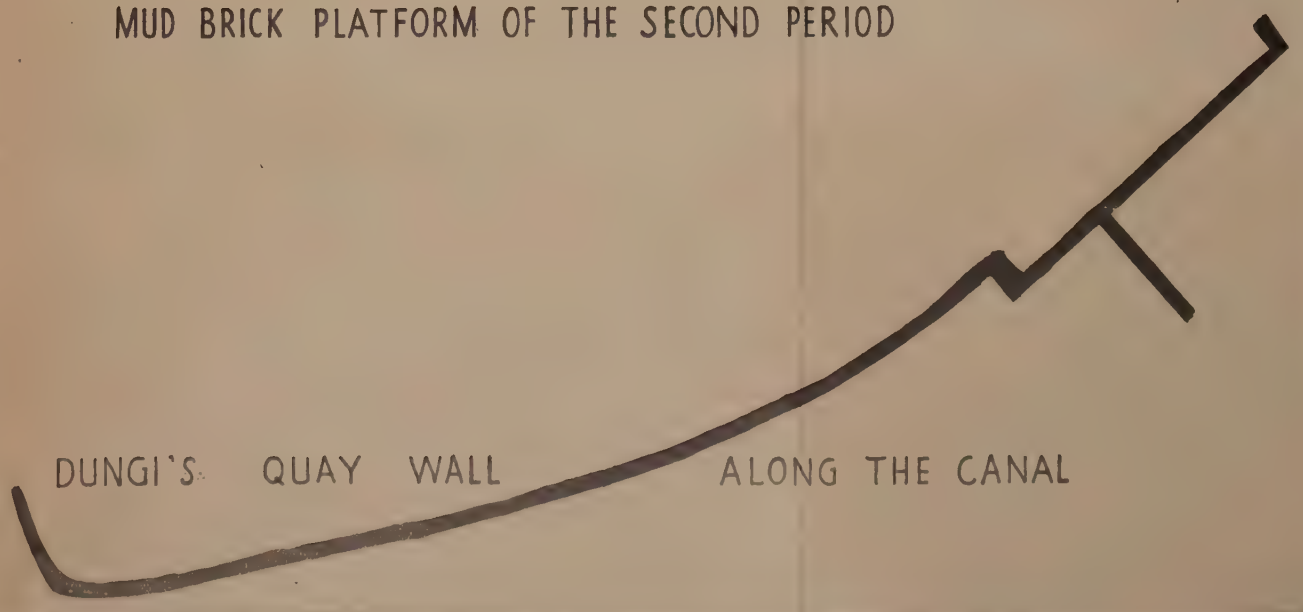

1. THE MOUND OF AL-'UBAID FROM THE N.E., 1919

2

3

THE FIRST DAY'S WORK AT AL-'UBAID, APRIL 1919

4. THE MOUND FROM THE N.W., SHOWING TRENCH: 1919

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5

DISCOVERY OF THE PILLARS AND THE FIGURES OF BULLS : 1919

6. MOSAIC AND COPPER PILLARS : 1919

7. WORKING UNDER THE TARPAULIN : MAY 1919

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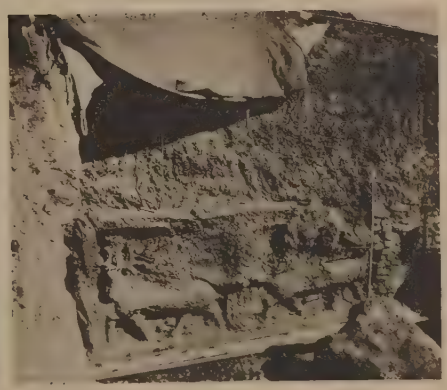


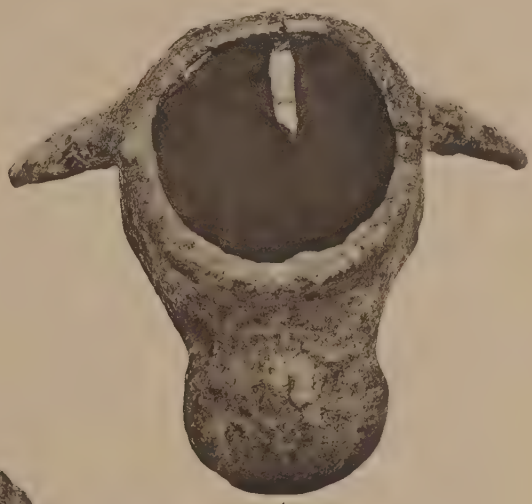
8

1–3. COPPER BULL-HEADS AND HORNS. 4. GOLD BULL'S HORN. 5. COPPER BIRDS' HEADS.
6–8. THE IM-DUGUD (IMGIG) RELIEF AS FOUND; 1919. 9, 10. STAG'S HEAD FROM THE IM-DUGUD RELIEF.

THE IM-DUGUD (IMGIG) RELIEF: (1919).

1. THE REMOVAL OF THE IM-DUGUD RELIEF: MAY 1919

2



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3

2–4. VIEWS OF SMALL COPPER BULL'S HEAD WITH CRESCENT ON FOREHEAD, No. 118015; found in 1919
(No. 4 shows the pin by which the head was fastened to the neck)

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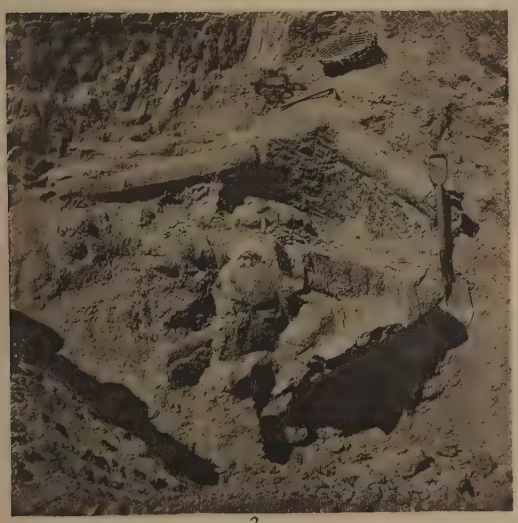

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1–4. THE EXCAVATION OF THE LION-HEADS : 1919. IMMEDIATELY AFTER DISCOVERY.

4–5. FIGURE OF KUR-LIL (?), AS FOUND AND 6. LIMESTONE TORSO OF KUR-LIL, WITH INSCRIPTION.

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THE TRACHYTE FIGURE OF KUR-LIL (?) 1919

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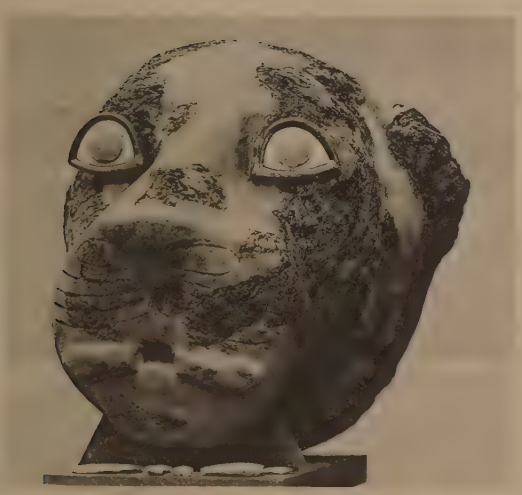

5

6

THE BITUMEN CORES OF THREE LARGE LION-HEADS (1, 2: No. 114315; 3, 4: No. 114318; 5, 6: No. 114317); WITHOUT THE COPPER OUTER MASK, BUT WITH THE EYES AND TONGUES IN PLACE. 1919.

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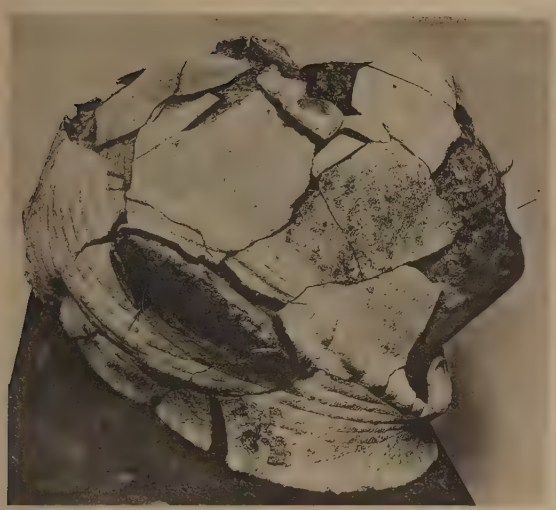

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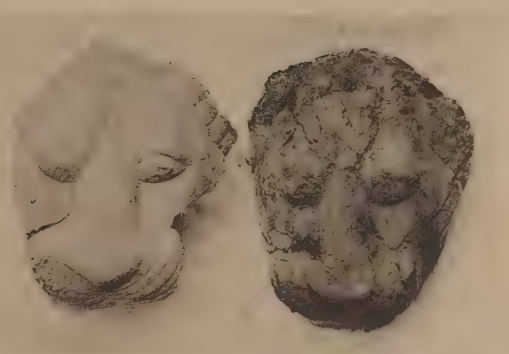

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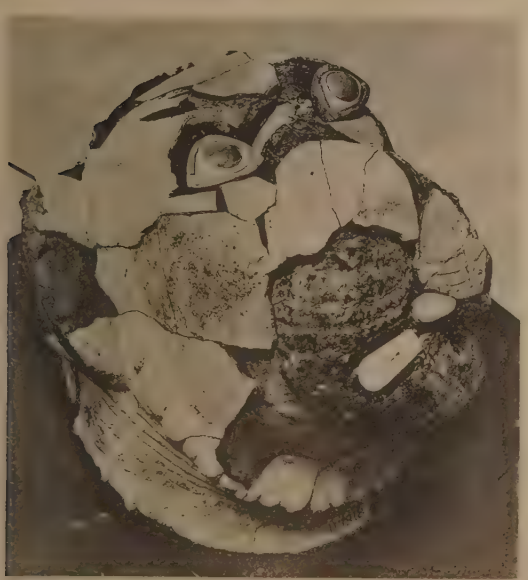

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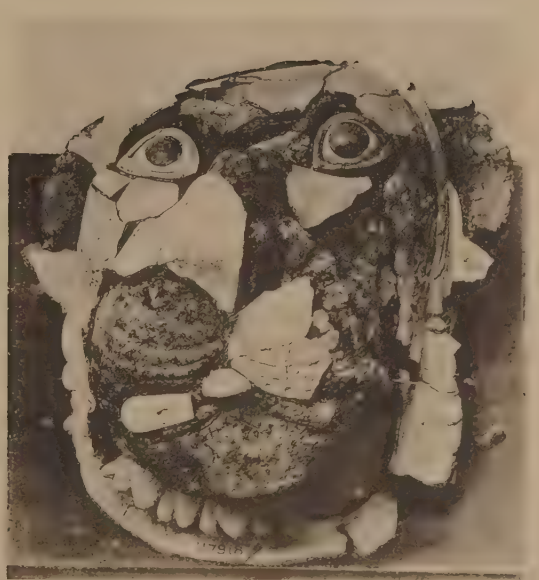
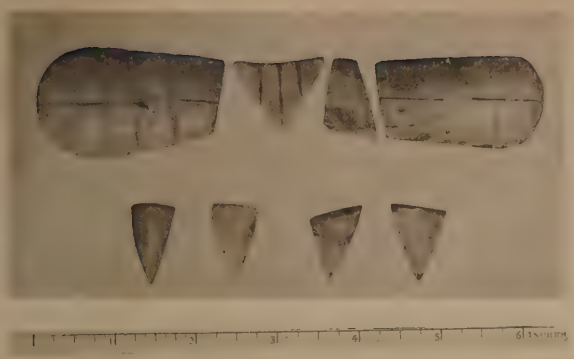
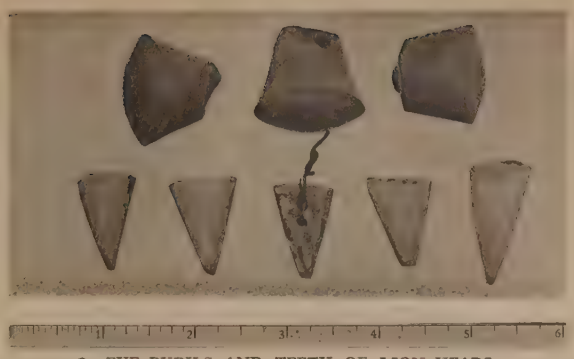


5

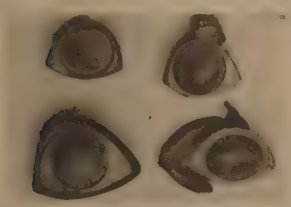
1. BACK OF BITUMEN CORE OF LION-HEAD, NO. 114315; SHOWING SQUARE HOLE FOR NECK-TENON. 2. SMALLER LION-HEAD, NO. 114314; WITH ONE EYE; BITUMEN; NO COPPER MASK PRESERVED. 3–5. SMALLER LION-HEAD, NO. 117918; BITUMEN CORE WITH REMAINS OF COPPER OUTER MASK, EYES, TONGUE, AND PART OF THE TEETH. 6, 7. THE TWO 'LEOPARD' HEADS, NOS. 114312–13; COPPER MASK OVER BITUMEN CORE. 8. THE COPPER MASK AND BITUMEN HEAD OF NO. 114312.



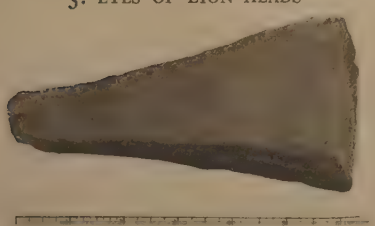
1. TEETH OF LION-HEAD, NO. 114318



2. EYE-PUPILS AND TEETH OF LION-HEADS



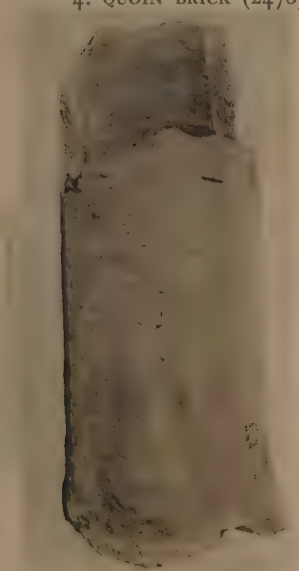
3. EYES OF LION-HEADS



4. QUOIN BRICK (2478)

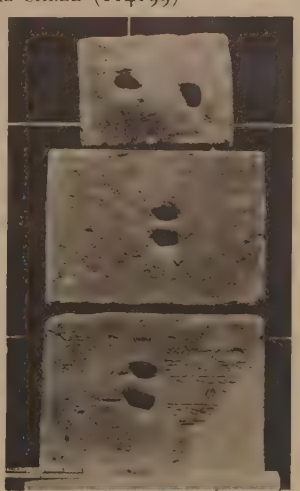
5. FLOWER (114201)

9. NACRE SHELL (114199)

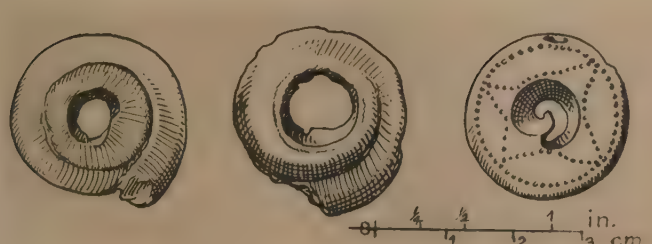


6. DRAIN-PIPE (115449)

8. SUMERIAN POTTERY



7. PLANO-CONVEX (EARLY) AND RECTANGULAR (DUNGI) BRICKS

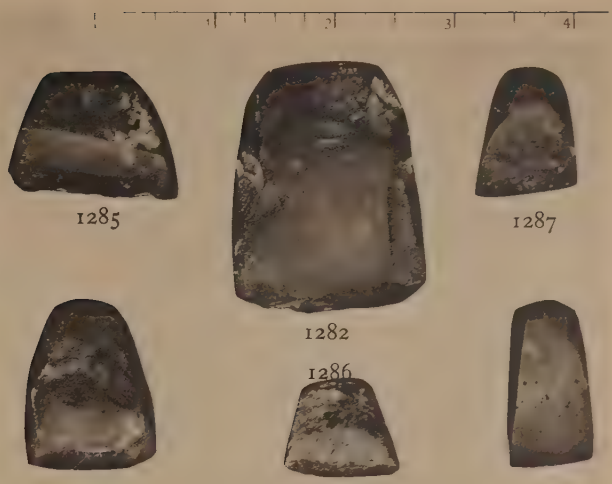


10. SHELL BEADS

11. PAINTED WARE (SUMERIAN): 2077

MISCELLANEOUS OBJECTS OF POTTERY AND SHELL, ETC. (1919)

1. CHERT HOE BLADES



2. CELTS

3. STONE MACE-HEADS

4. FLINT SAW-BLADES

6, 7. STONE PEGS AND STUDS

5. FLINT MICROLITHS

PREHISTORIC OR PRIMITIVE SURFACE-FINDS (1919): STONE

1. FLAKES AND CORES OF OBSIDIAN AND SMOKY QUARTZ

2. FLINT AND CHERT FLAKES

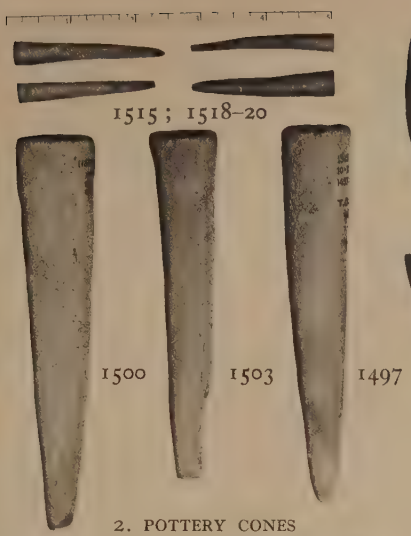
3. CORES AND FLAKES OF ROCK CRYSTAL

5. INLAY PLAQUES OF LIMESTONE, ETC.

4. ARROW-HEADS : CRYSTAL, FLINT, AND OBSIDIAN

6. CHERT HAMMERSTONES

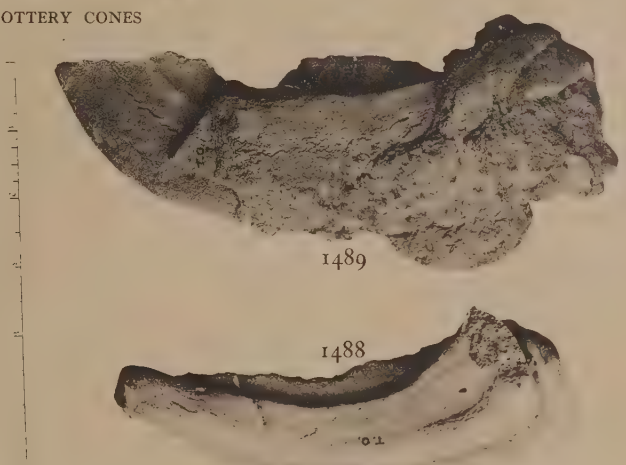
1. POTTERY WHORLS AND BEADS



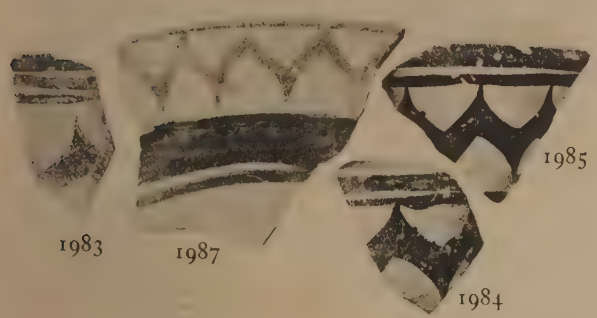
2. POTTERY CONES

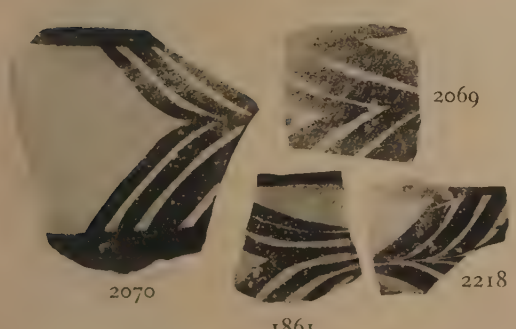
4. POTTERY SICKLES (BROKEN)

3. POTTERY ' NAILS ' (MULLERS ?)



5. POTTERY SICKLES : SPOILT PIECES, VITRIFIED





SURFACE-FINDS (1919) : PRIMITIVE POTTERY

PAINTED POTTERY (1919)

PAINTED POTTERY (1919)

PAINTED POTTERY (1919)

PAINTED AND INCISED POTTERY (1919)

INCISED AND OTHER POTTERY, SPOILED PIECES, ETC. (1919)

PAINTED, INCISED, AND MOULDED POTTERY (1919)

THE SOUTH-EAST STEPS AND PANELLED WALL OF PLATFORM, FROM THE SOUTH; 1924

THE SOUTH-EAST STEPS AND PANELLED WALL OF PLATFORM, FROM S.E.; 1924

1

2

1. INCLINED BRICK PAVING BURIED UNDER FLOOR AT THE FOOT OF THE SOUTH-EAST STEPS.
2. PATCH OF PAVEMENT, N.E. OF THE PLATFORM; 1924

1

2

1. LIMESTONE FOUNDATION AT EAST CORNER OF THE PLATFORM, DISCOVERED 1923. 2. PANELLED FACE OF PLATFORM WALL ON SOUTH-WEST SIDE, NEAR SOUTH CORNER; 1924.

1

2

1. PROJECTING DRAIN-CHANNEL, NORTH-WEST FACE OF THE PLATFORM.
2. THE SOUTH-WEST STEPS ; DISCOVERED 1919.

1

2

1. BULL-STATUES AND COPPER CASING OF COLUMNS, IN THE GROUND, AS FOUND. 2. BULL-STATUES, COPPER COLUMN-CASING, AND PARTS OF COPPER FRIEZE OF BULLS, IN THE GROUND; 1923.

($\frac{1}{7}$)

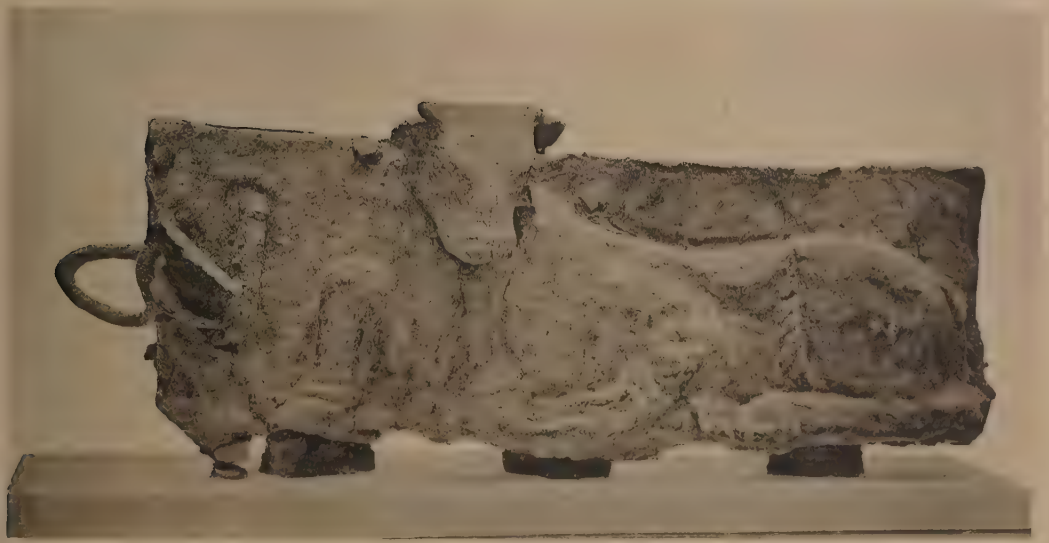
T.O. 321. COPPER-PLATED FIGURE OF A BULL : 1923
(London)

($\frac{1}{6}$)

T.O. 427. COPPER-PLATED FIGURE OF A BULL; 1923
(Philadelphia)

1 ($\frac{1}{6}$)

2 ($\frac{1}{5}$)



3 ($\frac{1}{5}$)

COPPER RELIEFS OF BULLS, FROM A FRIEZE; 1923

1. T.O. 261. (London)
2. T.O. 262. (Baghdad)
3. T.O. 260. (Baghdad)

1

2

3

1. CLAY CONES, WITH FLOWER HEADS ($\frac{1}{4}$); 1923. 2. DETACHED HEADS FROM THE COPPER FRIEZE OF BULLS ($\frac{1}{3}$)
3. BULL-RELIEF T.O. 261 ; FOREPART AS FOUND ($\frac{1}{4}$)

1

2

3

T.O. 303. INLAY FRIEZE, WITH LIMESTONE FIGURES (Baghdad); 1923

1. AS FOUND. 2. WITH PARTS REPLACED. 3. AS RESTORED (about $\frac{1}{5}$)

1. ($\frac{1}{3}$)

2. ($\frac{1}{3}$)

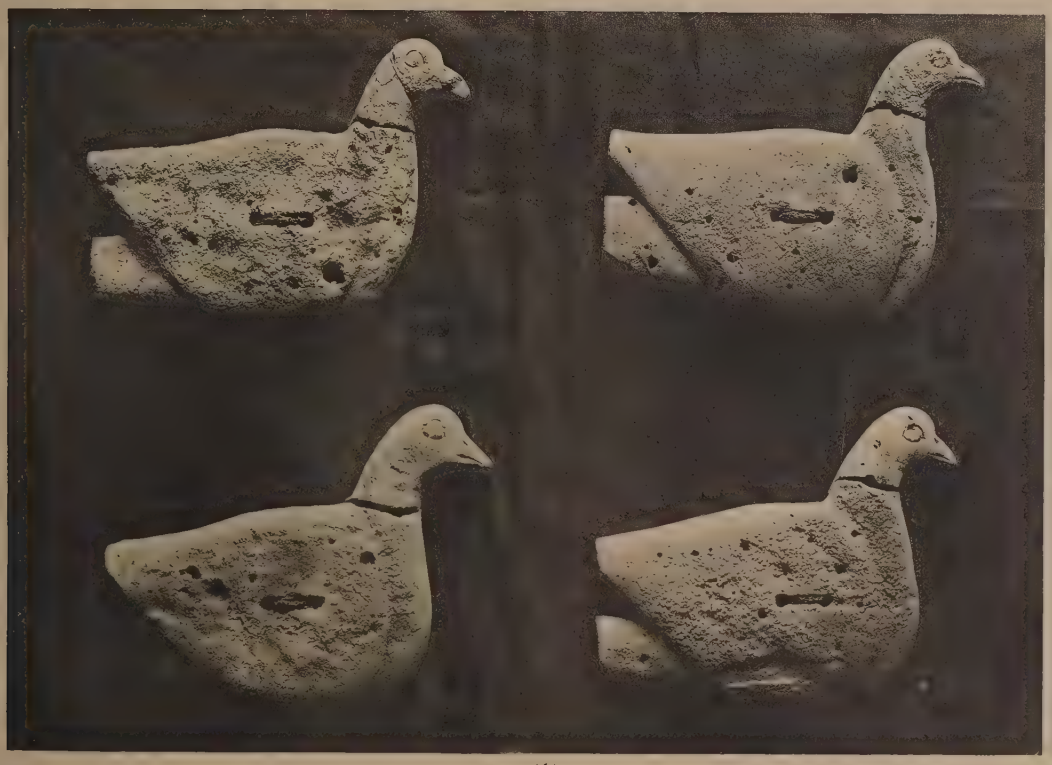
3. ($\frac{1}{5}$)

INLAY PANELS, WITH SHELL FIGURES OF BULLS; 1923

1. T.O. 299 (London) 2. T.O. 301 (Baghdad) 3. T.O. 300 (Philadelphia)

1. ($\frac{1}{3}$)

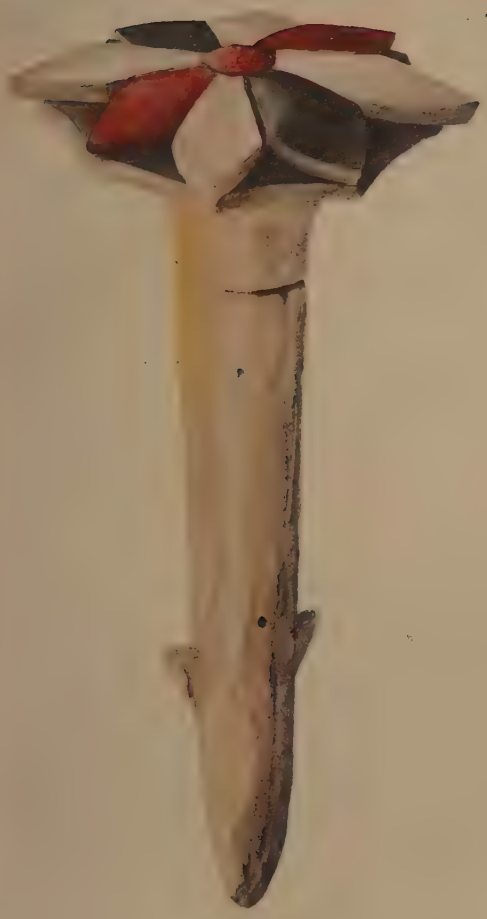
2. ($\frac{1}{3}$)



3. ($\frac{1}{3}$)

4. ($\frac{1}{4}$)

1. Shell Inlay Figure of a Bull. T.O. 307 (Philadelphia). 2. Stone Inlay Figures of Bulls. T.O. 278, 279 (Philadelphia and London). 3. Limestone Inlay Figures of Birds (Philadelphia and London). 4. Limestone Inlay Figures of Birds, mounted in original position as a Frieze (Philadelphia)



1. (Scale $\frac{1}{2}$). F.G.N.

2. (Scale $\frac{1}{4}$).

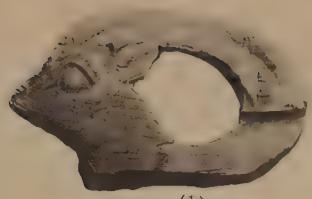
3. (Scale $\frac{1}{5}$).

DRAWINGS OF (1) A POTTERY FLOWER, (2) A BULL-FRIEZE OF SHELL INLAID IN BITUMEN, AND (3) A MOSAIC PILLAR.
(By F. G. Newton.)

1. $(\frac{1}{2})$.

2. $(\frac{1}{1})$.

3 $(\frac{1}{1})$.



4. $(\frac{1}{1})$.

5. $(\frac{1}{2})$

6. $(\frac{1}{6})$.

7

1. Limestone Plaque with Mythological Scene, T.O. 288 (Philadelphia). 2. Hollow Gold Bead with Name of A-anni-padda, T.O. 286 (Baghdad). 3. Engraved Shell Plaque, T.O. 289 (London). 4. Shell Inlay Fragment, T.O. 305 (Philadelphia). 5. Foundation-Tablet of A-anni-padda, T.O. 160 (London). 6, 7. Mosaic Columns, T.O. 430, 431 (London and Philadelphia)

1. ($\frac{1}{2}$).

2. ($\frac{1}{4}$).

3. ($\frac{1}{4}$).

4. ($\frac{1}{4}$).

5. ($\frac{1}{4}$).

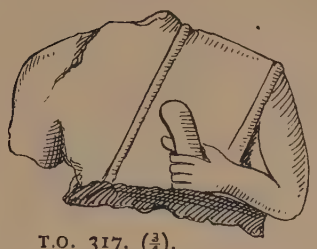
6

1. Inscribed Fragment of a Black Diorite Bowl, T.O. 287 (Philadelphia). 2–5. Sculptured Limestone Vase or 'Well-head', T.O. 285 (London). 6. The Design of T.O. 285, extended. (drawn by the late F. G. Newton)

T.O. 376. ($\frac{3}{5}$).

T.O. 315. ($\frac{2}{3}$).

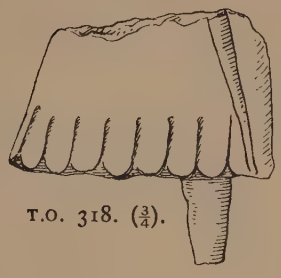
T.O. 422. ($\frac{3}{4}$).



T.O. 317. ($\frac{3}{4}$).

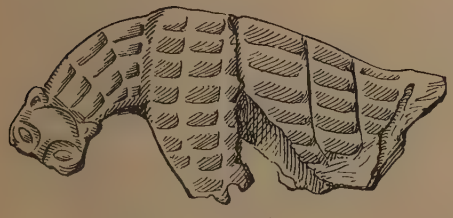
T.O. 314. ($\frac{7}{10}$).

T.O. 306. ($\frac{2}{3}$).

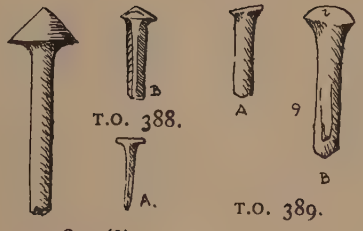


T.O. 318. ($\frac{3}{4}$).

T.O. 316. ($\frac{1}{1}$).



T.O. 319. ($\frac{2}{3}$).



T.O. 388.

T.O. 389.

T.O. 387. ($\frac{2}{3}$).

T.O. 413.

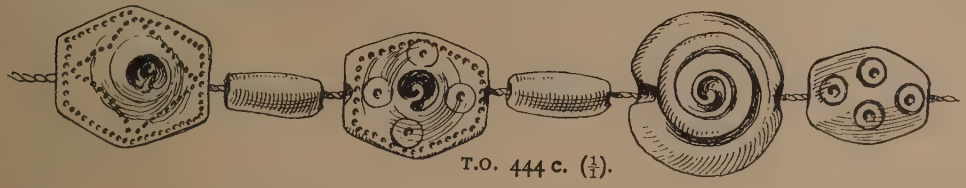
T.O. 414.

T.O. 415.

T.O. 416.

T.O. 417.

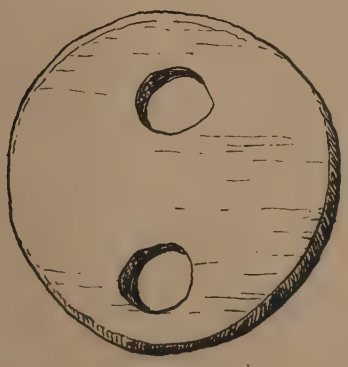
T.O. 418.



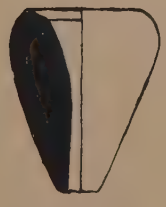
T.O. 444 c. ($\frac{1}{1}$).

T.O. 409. ($\frac{1}{1}$).

T.O. 386 ($\frac{2}{3}$).



T.O. 385. ($\frac{3}{8}$).



T.O. 337. ($\frac{5}{16}$).

Sketch reconstructions of part of the Temple of Nin-khursag, at al-'Ubaid, from the south; showing the S.E. face of the building with the entrance-stairway; on the right is the E. corner of the platform.

(By C. L. Woolley.)

1

2

3

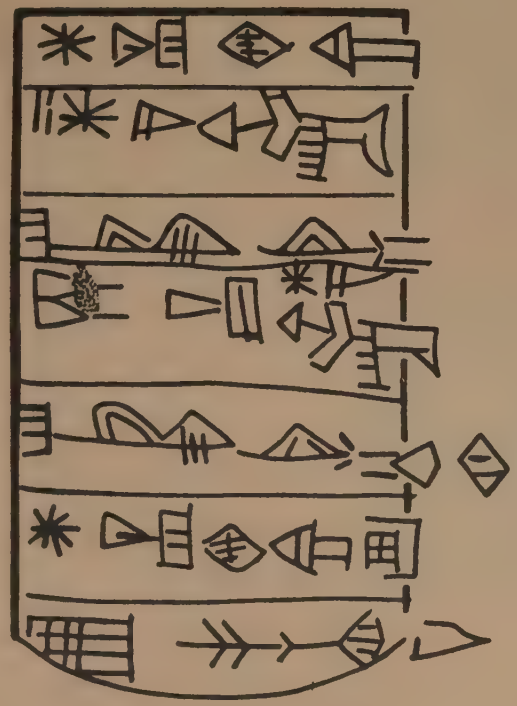
4

1. RELIEF UPON A BOWL-FRAGMENT IN THE LOUVRE, A.O. 8842.

2, 3. REED, MATTING, AND MUD-BRICK CONSTRUCTIONS OF MODERN 'IRAQ.

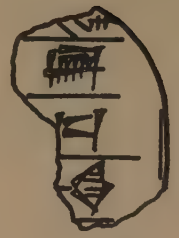
4. HOUSE OF A MUNTAFIQ SHAIKH, SHOWING PANELLED WALLS.

T.O. 159.



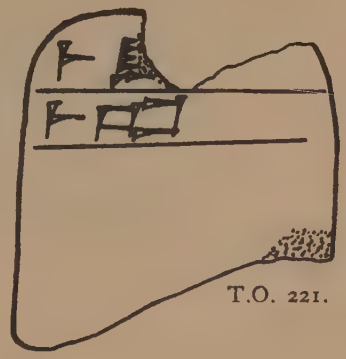
T.O. 160 (B.M. 116982).

T.O. 225.

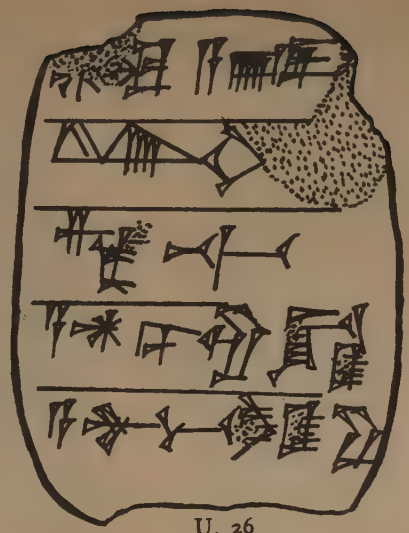


T.O. 224.

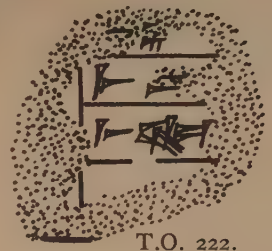
T.O. 223.



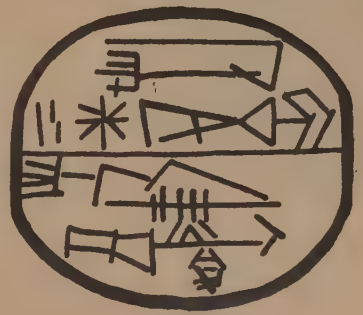
T.O. 221.



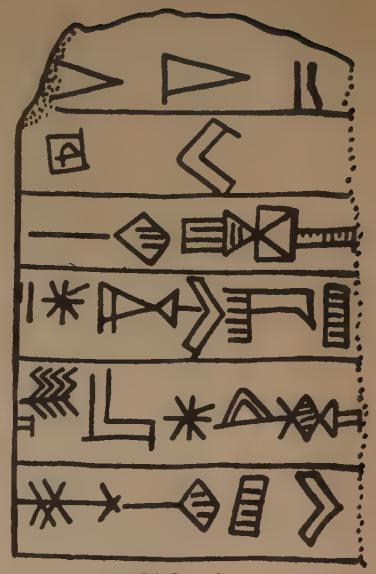
U. 26



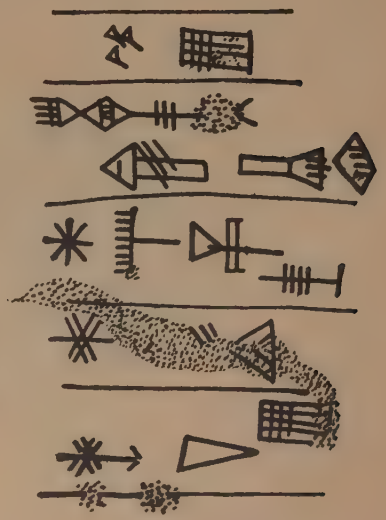
T.O. 222.



T.O. 286.



T.O. 287.



B.M. 114206

INSCRIPTIONS FROM AL-'UBAID AND UR

PLATE XL

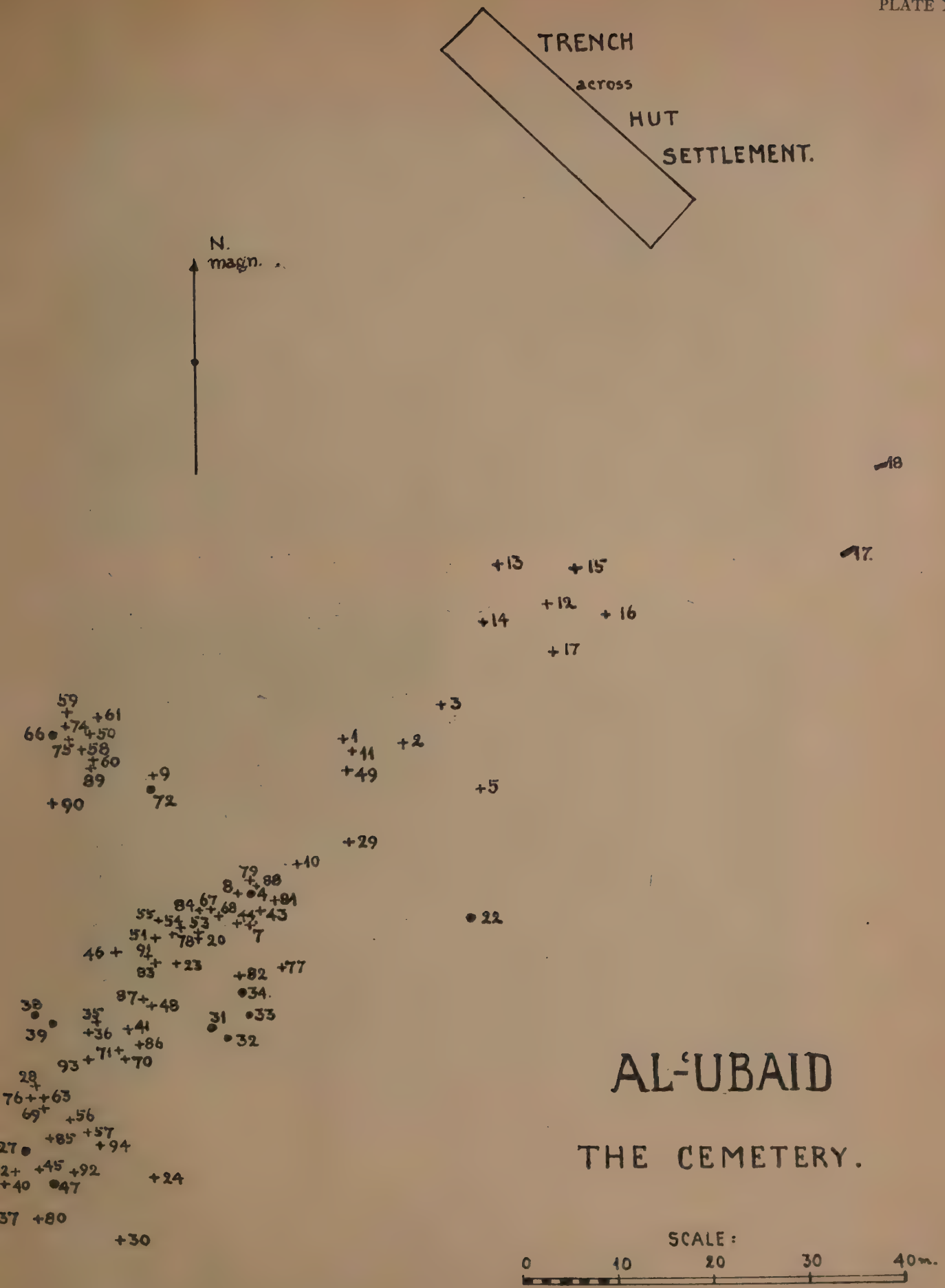
1

2

3

4

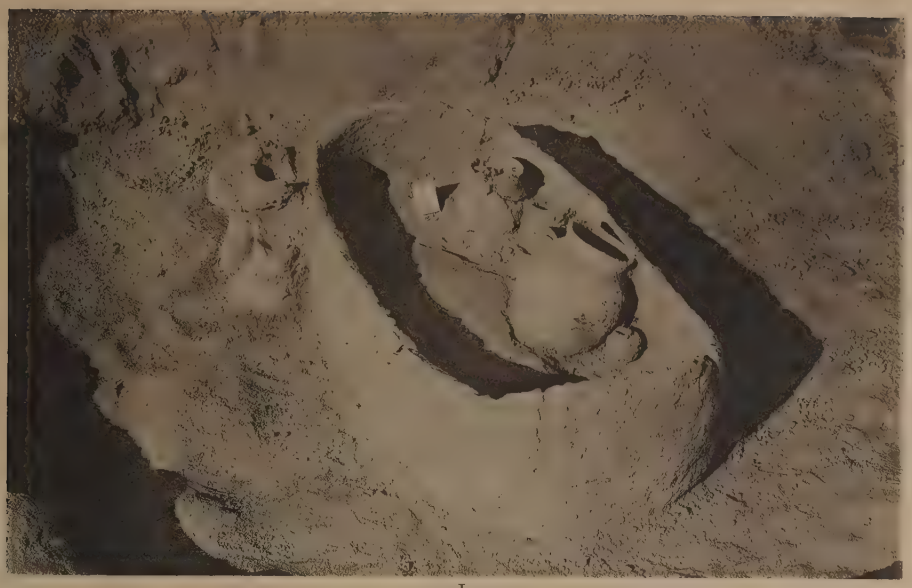
1. TABLET OF THE PERIOD OF URUKAGINA (B.M. 96592). 2. DEDICATION TABLET WRITTEN IN THE REIGN OF A-ANNI-PADDA. FROM UR (U. 26). 3, 4. ARCHAIC TABLETS OF UNKNOWN PROVENANCE (B.M. 116730, 116627)
(Scale 1 : 1)


TRENCH
across
HUT
SETTLEMENT.
N.
magn.
AL-'UBAID
THE CEMETERY.
SCALE:
0
10
20
30
40m.

GRAVES IN THE CEMETERY AT AL-'UBAID (C. 1, C. 4)

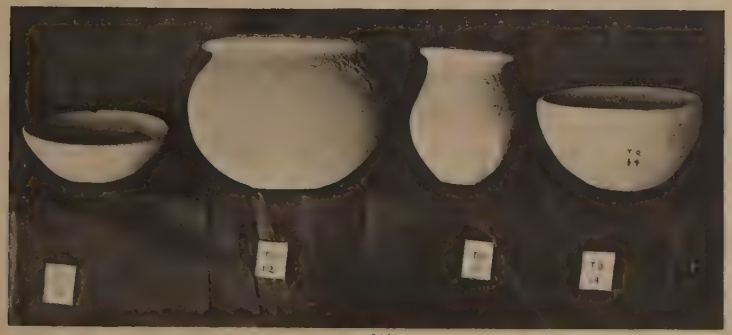
GRAVES IN THE CEMETERY AT AL-'UBAID (C. 10, C. 28)

GRAVES IN THE CEMETERY AT AL-'UBAID (C. 37, C. 56)



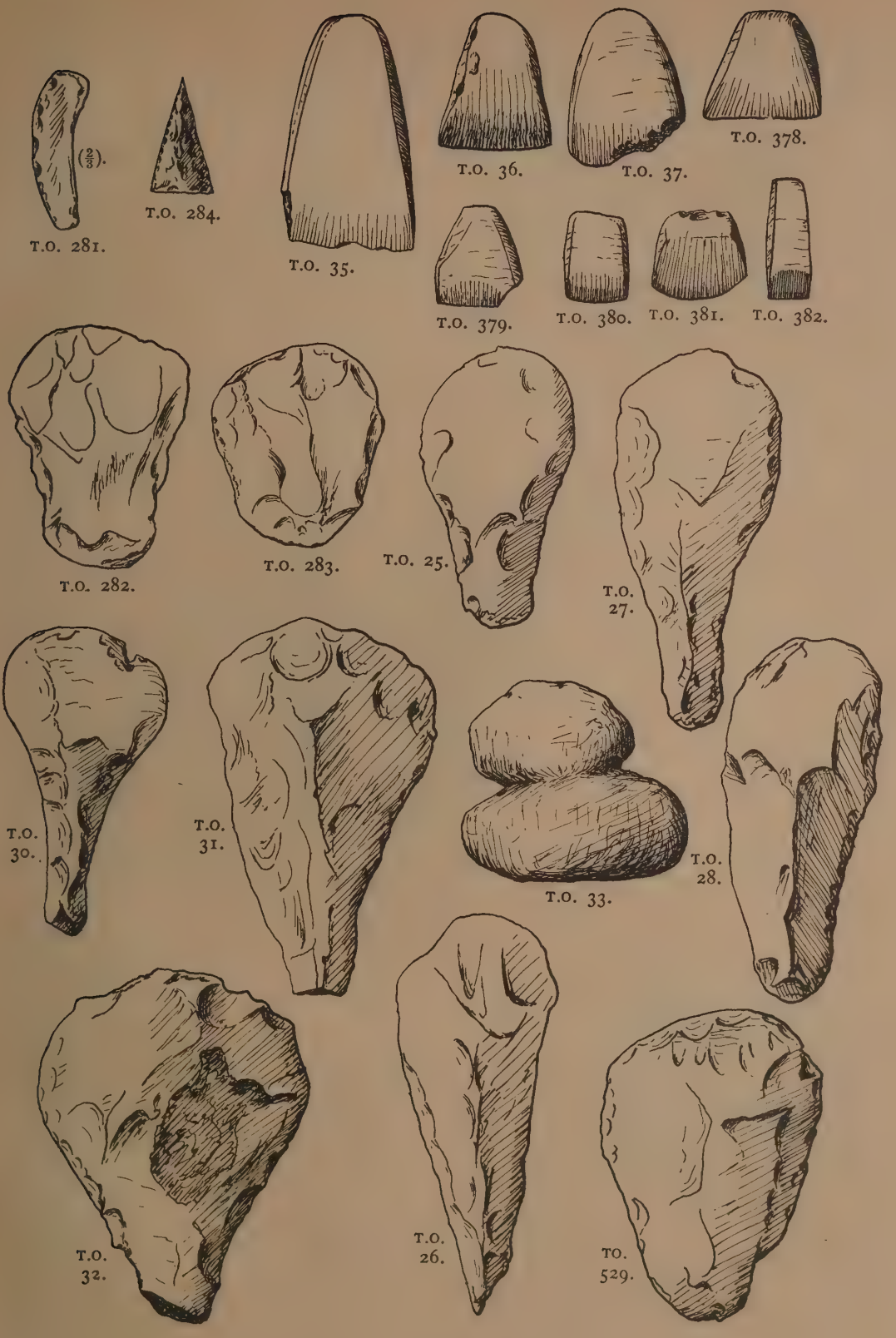
1

2. $(\frac{1}{3})$.



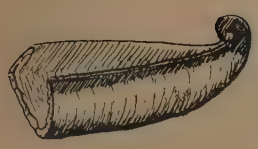
3. $(\frac{1}{5})$.

1. GRAVE C. 66 IN THE CEMETERY AT AL-ʿUBAID. 2. TOOLS AND WEAPONS OF CHERT, POTTERY, AND COPPER. 3. STONE VESSELS. (1923).



Scale ½

TYPES OF STONE IMPLEMENTS : 1923



T.O. 532. ($\frac{1}{3}$).

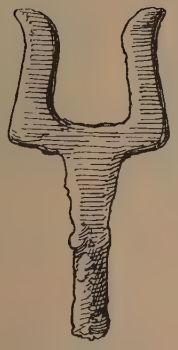
T.O. 369. ($\frac{2}{3}$).

T.O. 405. ($\frac{2}{3}$).

T.O. 407. ($\frac{2}{3}$).

T.O. 520. ($\frac{1}{2}$).

T.O. 359. ($\frac{1}{3}$).



T.O. 358. ($\frac{2}{5}$).

T.O. 9. ($\frac{1}{1}$).

T.O. 530. ($\frac{1}{3}$).

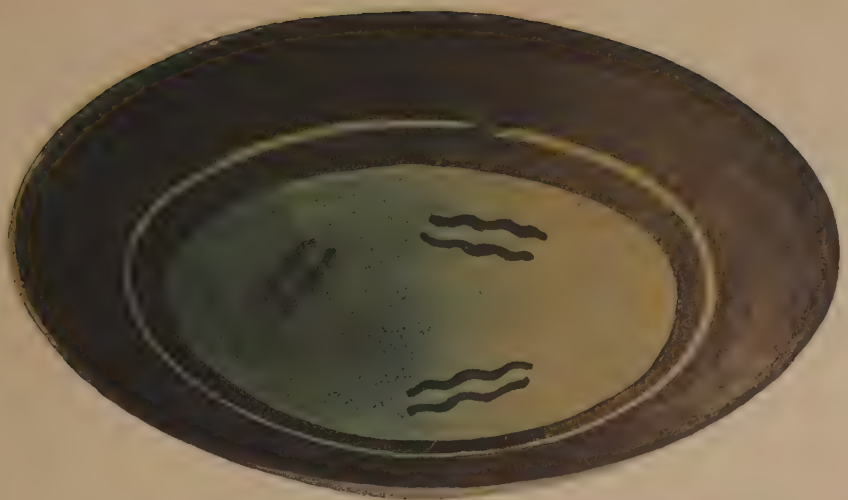
T.O. 8. ($\frac{1}{1}$).

T.O. 384. ($\frac{3}{4}$).

T.O. 355. ($\frac{1}{8}$).

T.O. 7. ($\frac{1}{8}$).

B.M. 117010. ($\frac{4}{7}$).



T.O. 517. ($\frac{1}{2}$).

T.O. 516. ($\frac{1}{2}$).

T.O. 254. ($\frac{3}{5}$).

T.O. 518. ($\frac{2}{3}$).

T.O. 253. ($\frac{3}{5}$).

T.O. 515. ($\frac{1}{2}$).

F. G. N.

PAINTED CHALCOLITHIC POTTERY

(By F. G. Newton.)

TYPE
P. i

TYPE
P. ii

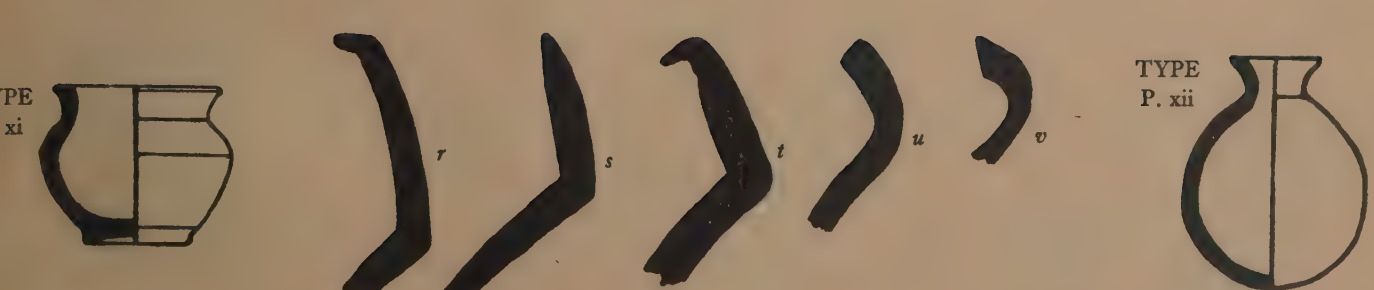
TYPE
P. iii

TYPE
P. iv

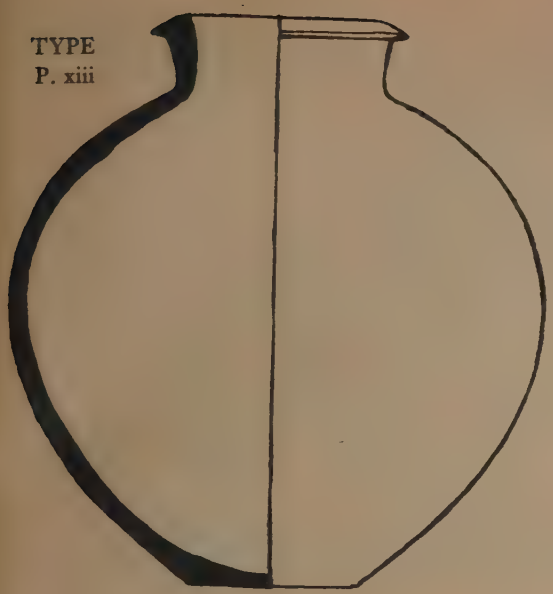
E

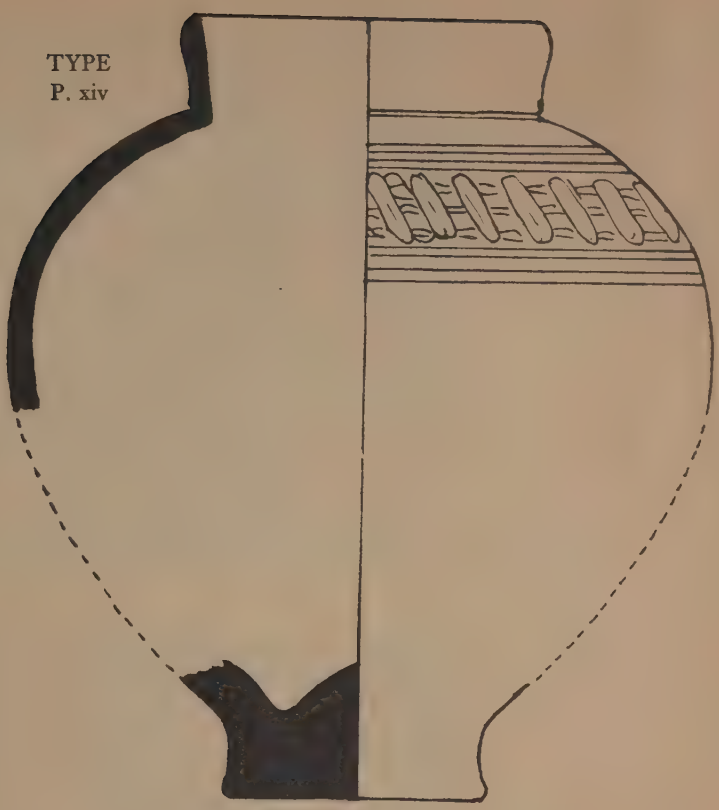
TYPE
P. vi

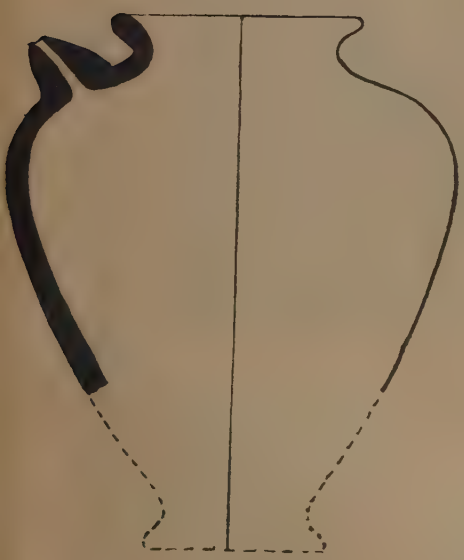
TYPES OF PAINTED AND INCISED POTTERY

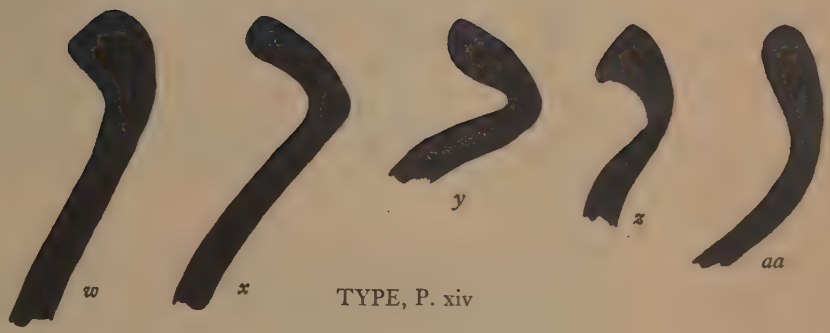


TYPES OF PAINTED AND INCISED POTTERY

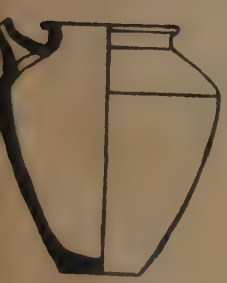


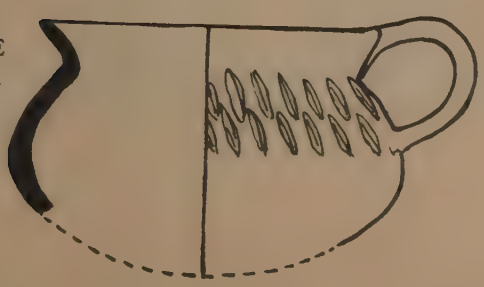






TYPE, P. xiv

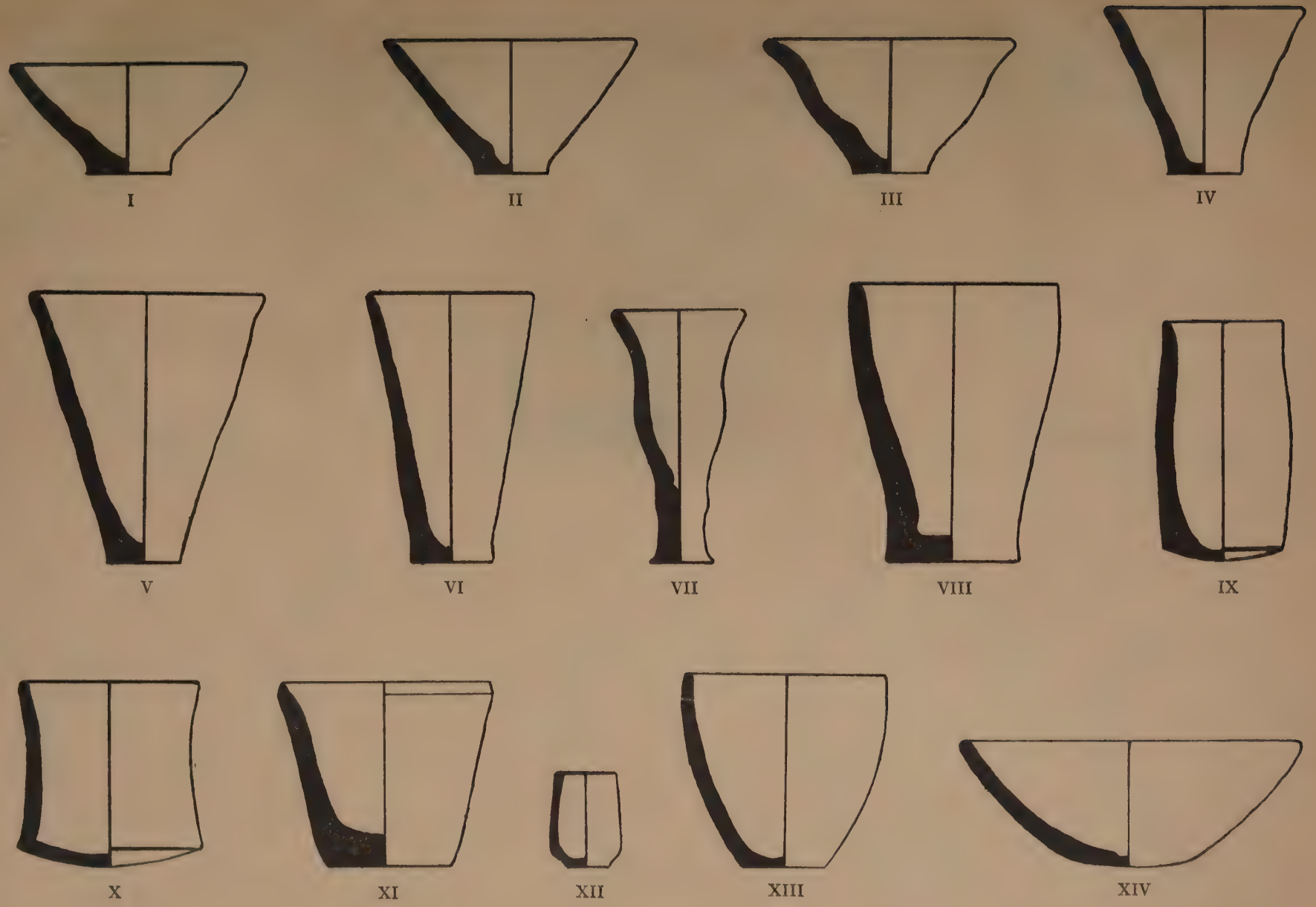




TYPES OF PAINTED AND INCISED POTTERY

UNPAINTED POTTERY VESSELS FROM THE CEMETERY

UNPAINTED POTTERY VESSELS FROM THE CEMETERY



TYPES OF UNPAINTED POTTERY

XV

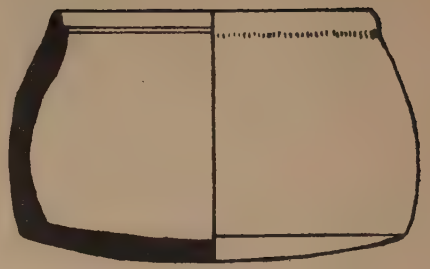
XVI

XVII

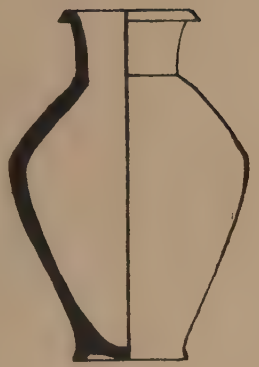
XVIII

XIX

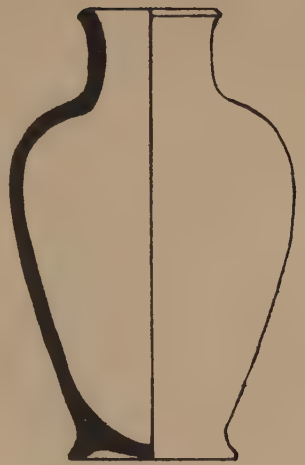
XX



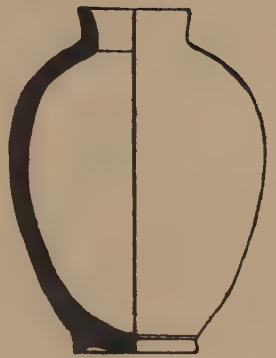
XXI



XXII



XXIII



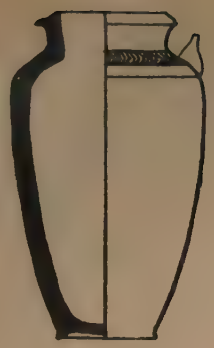
XXIV

XXV

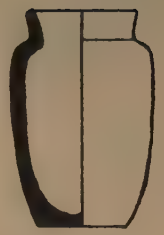
XXVI

TYPES OF UNPAINTED POTTERY

PLATE LVI

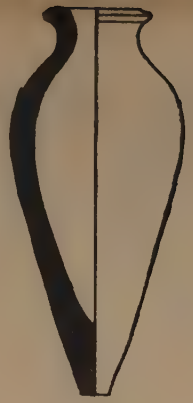


XXVII

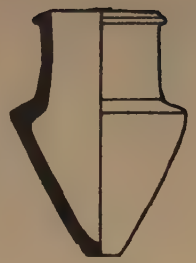


XXVIII

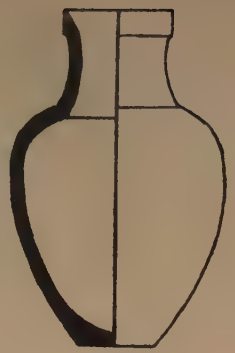
XXIX



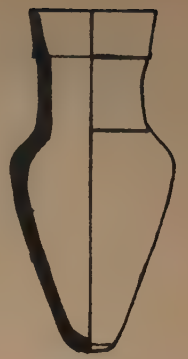
XXX



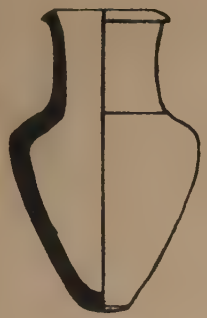
XXXI



XXXII



XXXIII

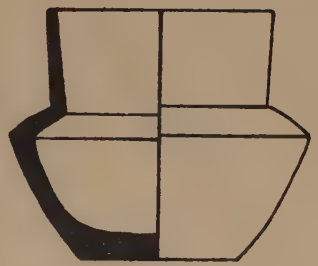


XXXIV

XXXV

XXXVI

XXXVII



XXXVIII

XXXIX

XL

XLI

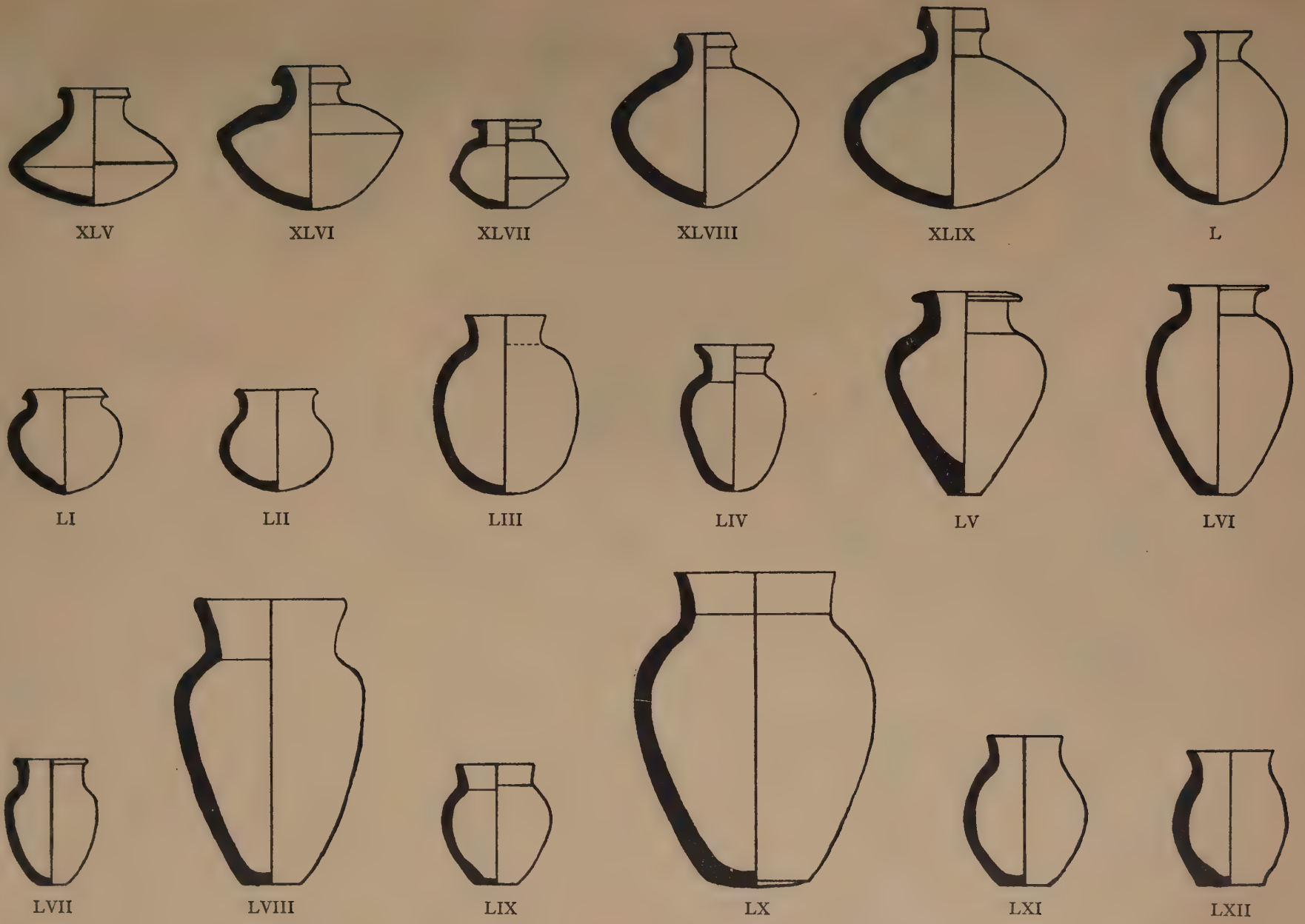
XLII

XLIII

XLIV

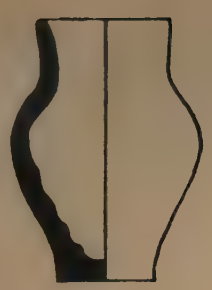
TYPES OF UNPAINTED POTTERY

PLATE LVII



TYPES OF UNPAINTED POTTERY

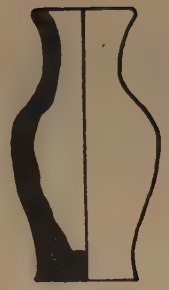
PLATE LVIII



LXIII

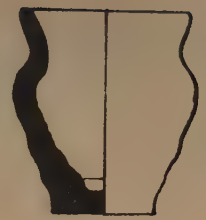
LXIV

LXV



LXVI

LXVII



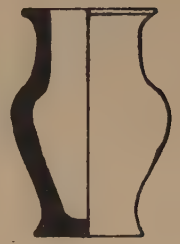
LXVIII

LXIX

LXXV

LXX

LXXI



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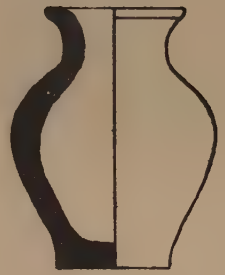
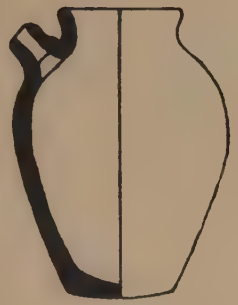


LXXIII

LXXIV



LXXVI

LXXVII

LXXVIII

LXXIX

LXXX

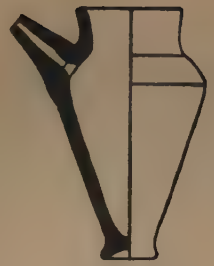
LXXXI

TYPES OF UNPAINTED POTTERY

PLATE LIX

LXXXII

LXXXIII



LXXXIV

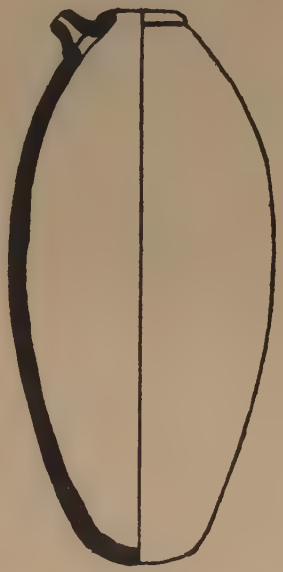
LXXXV

LXXXVI

LXXXVII

LXXXVIII

LXXXIX



XC

XCI

XCII

XCIII

XCIV

XCV

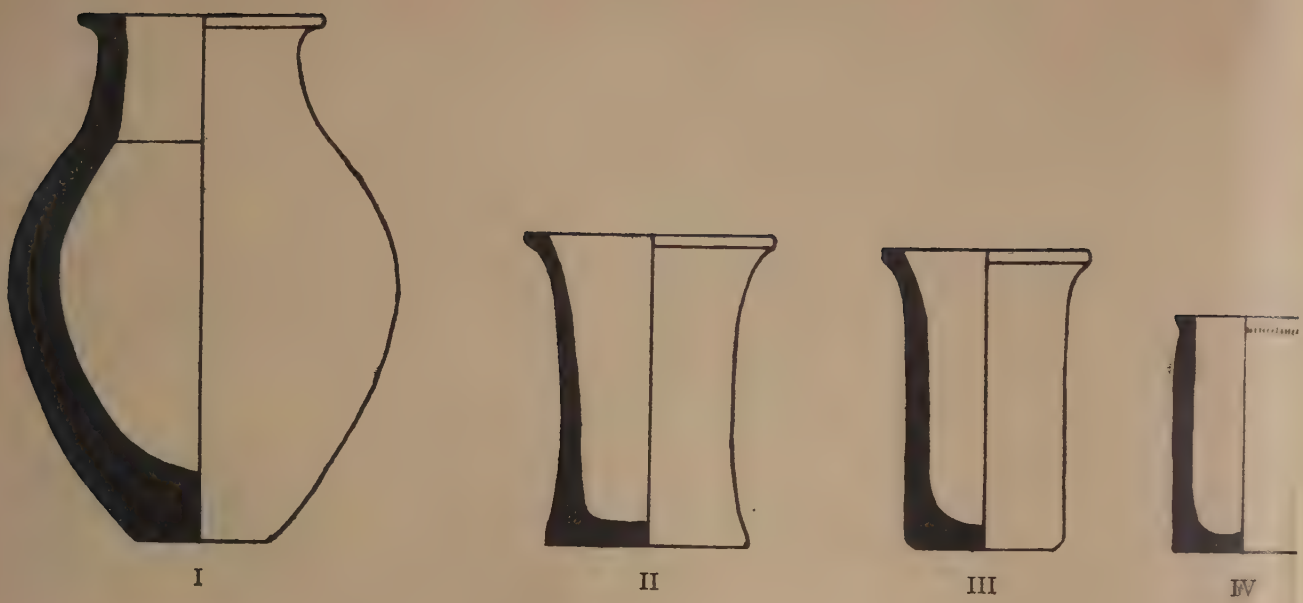
XCVI

XCVII

XCVIII

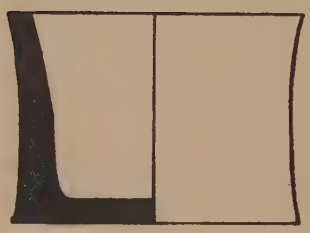
TYPES OF UNPAINTED POTTERY

PLATE LX



TYPES OF STONE VASES FROM THE CEMETE

V

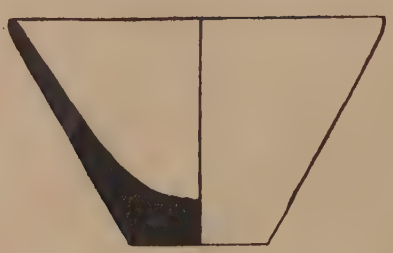


VI

XI

XII

XVI



XVII

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XXIII

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XXVI

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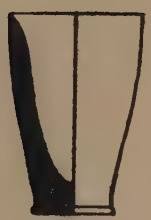

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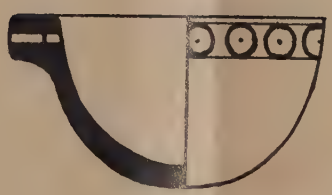
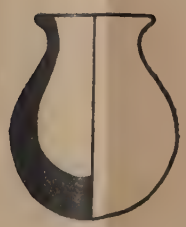
XXXIV



XXXV

XXXVIII

XXXIX



XL

TYPES OF STONE VASES FROM THE CEMETERY

XXVII

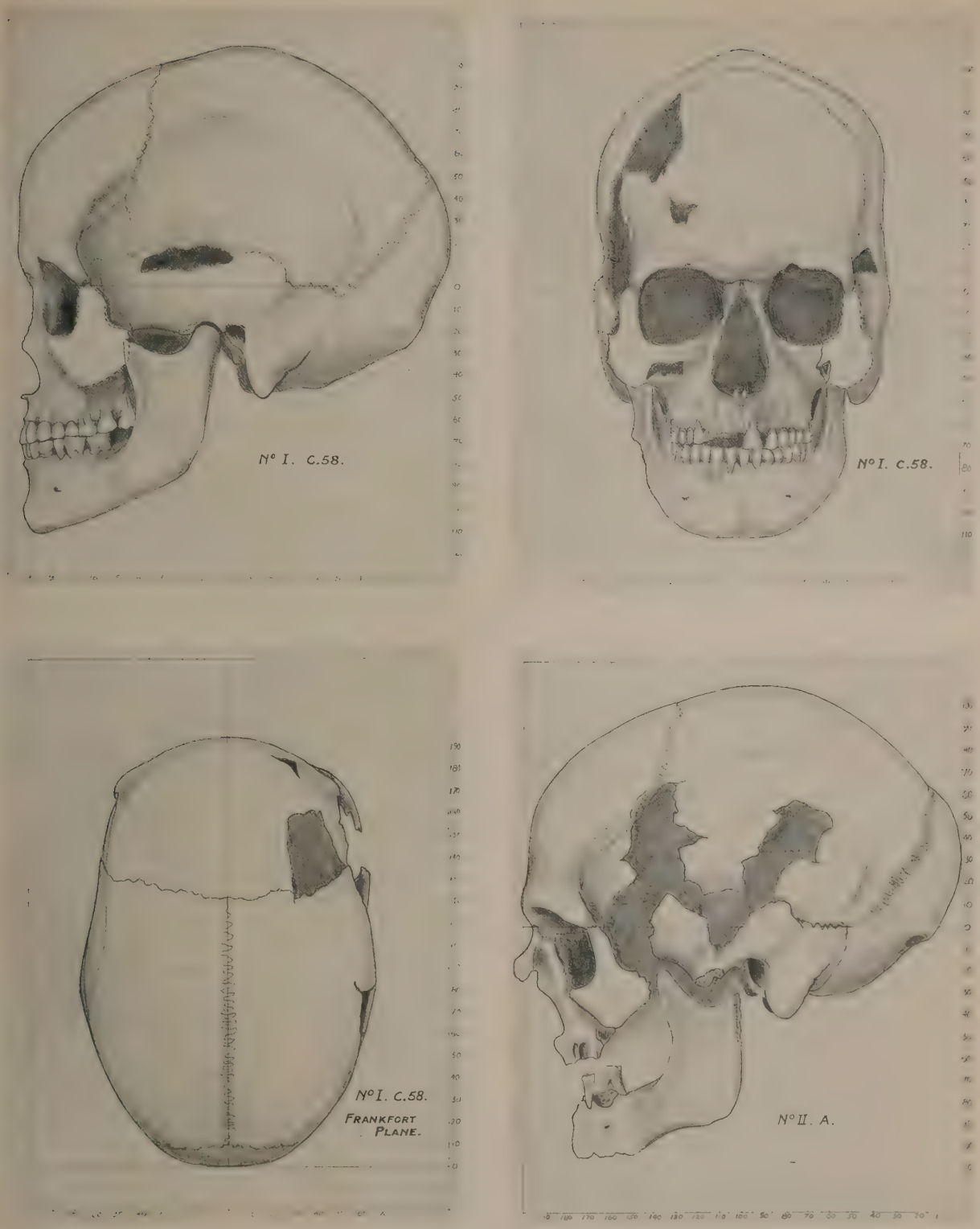
XXVIII

XXXI

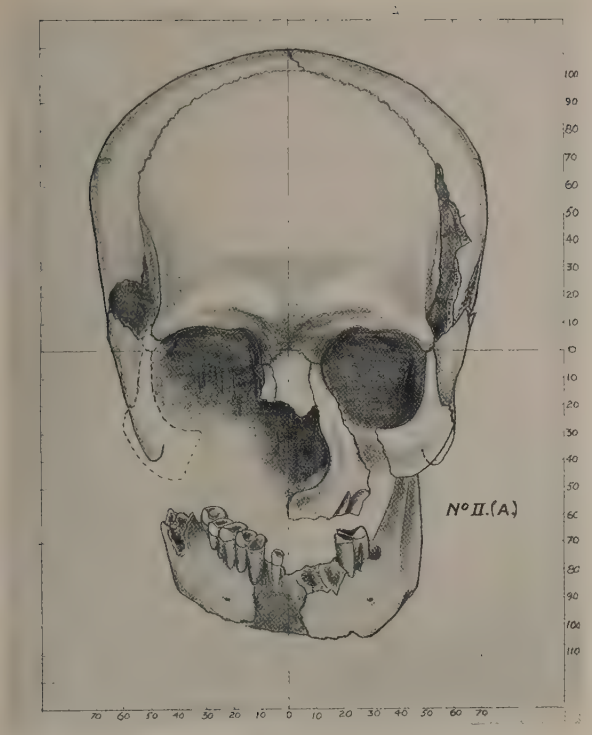
XXXVI

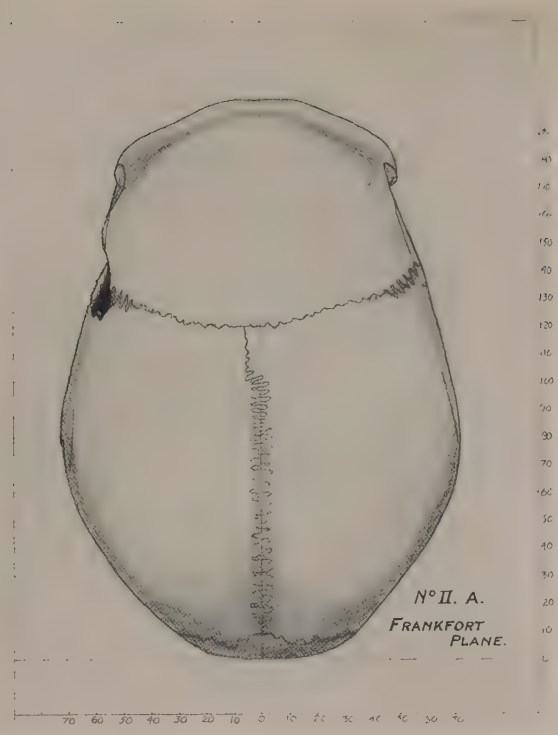
XXXVII

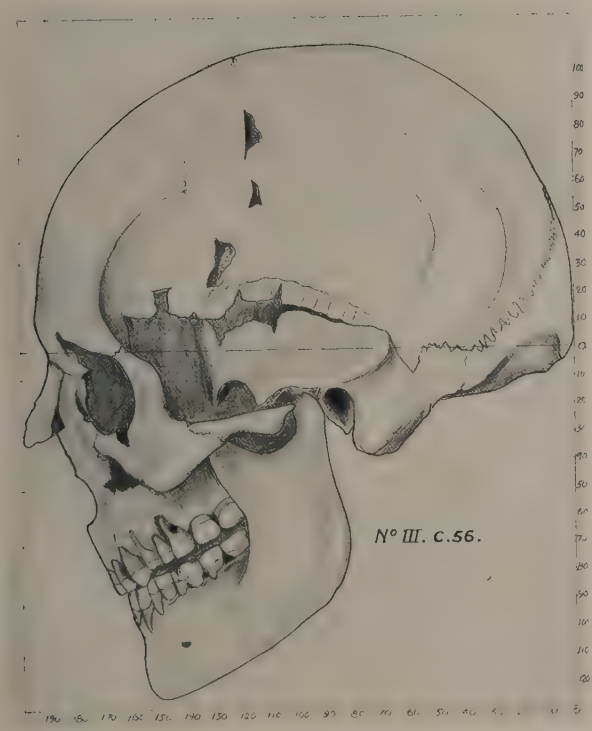
I

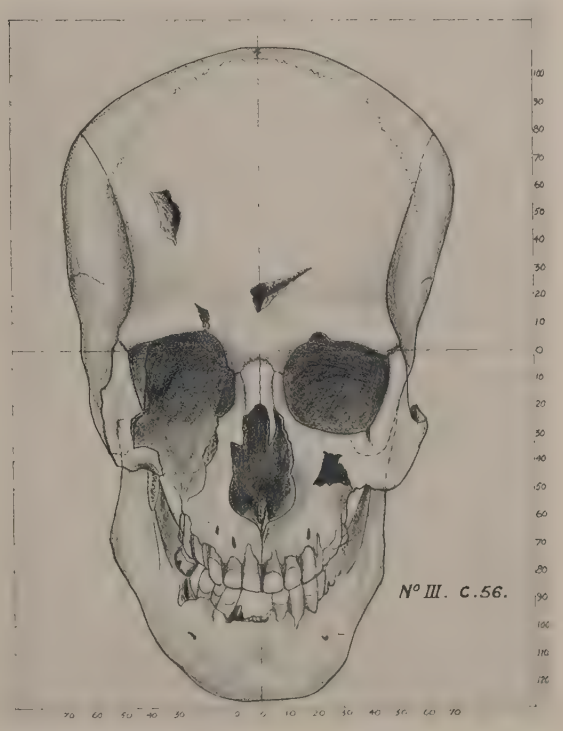


SKULLS FROM THE CEMETERY, AL-'UBAID









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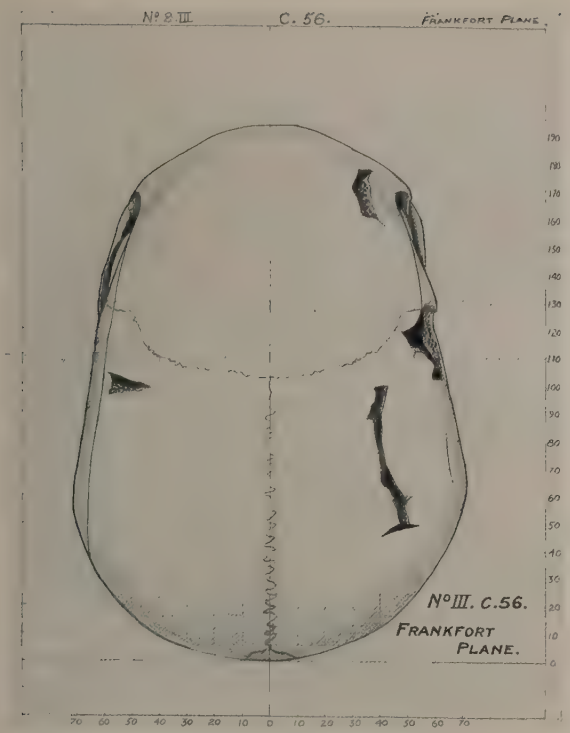

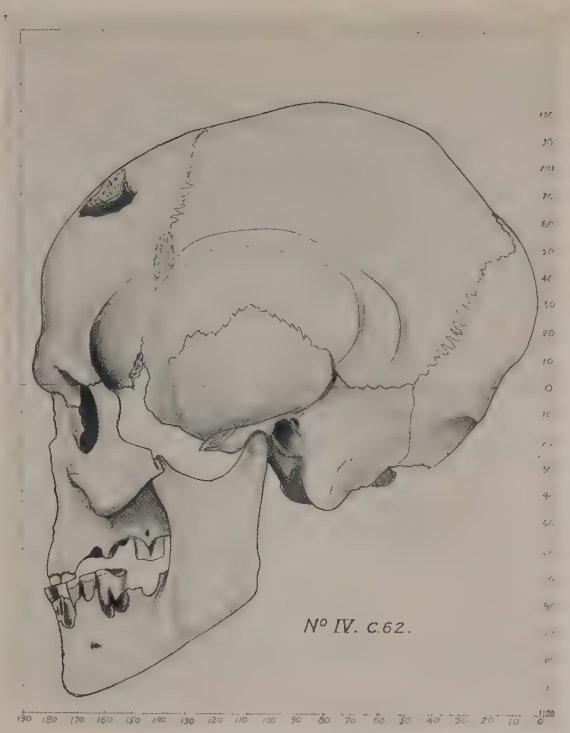

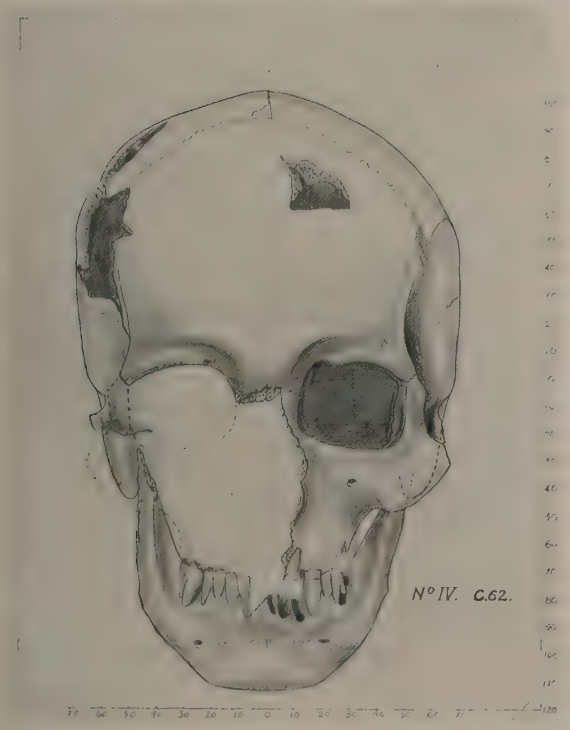

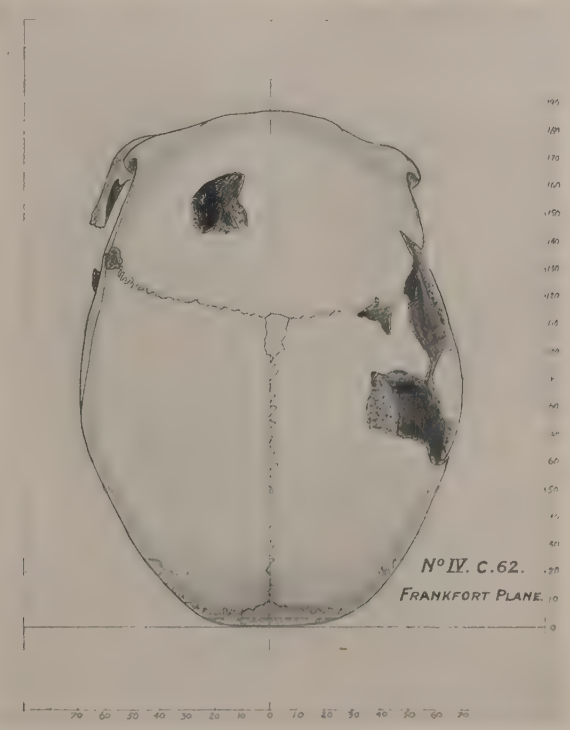

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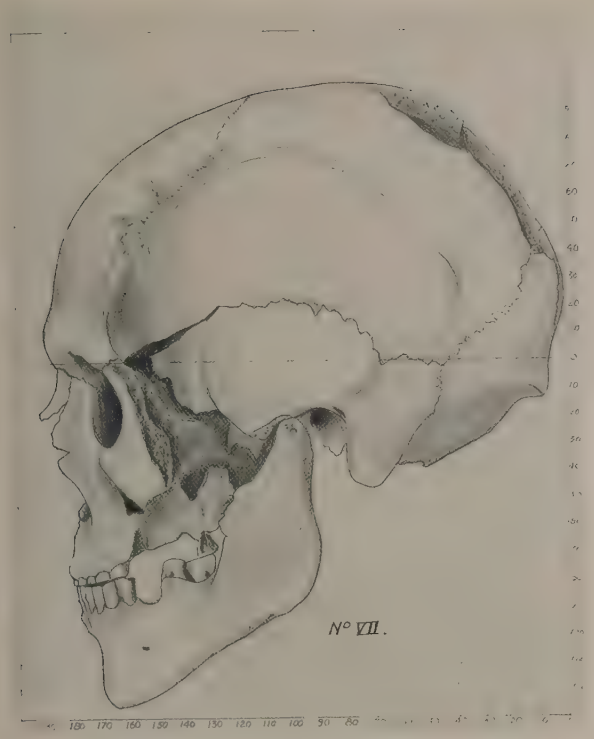

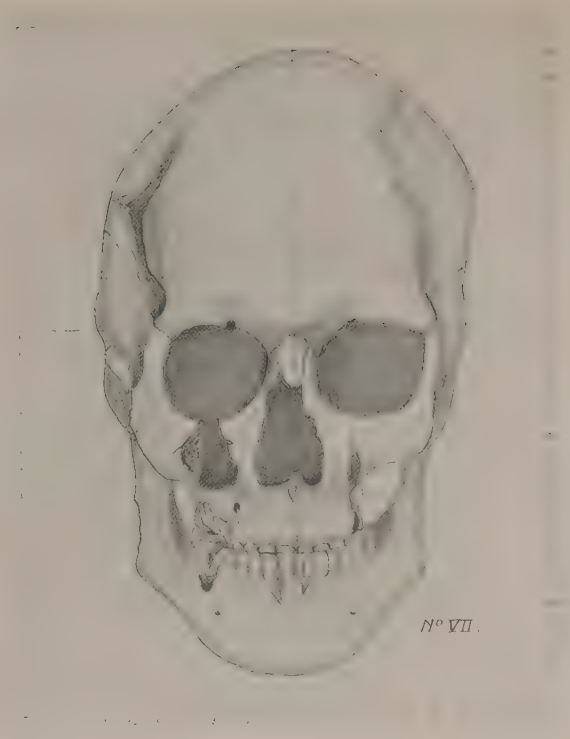

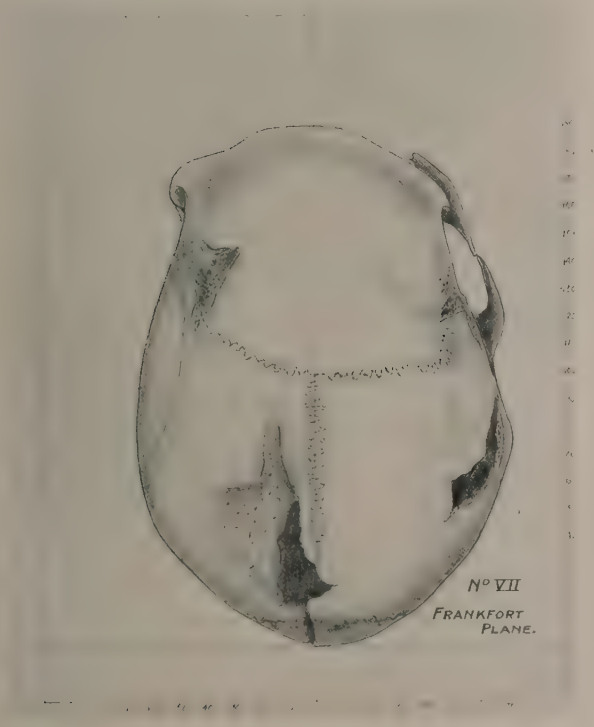

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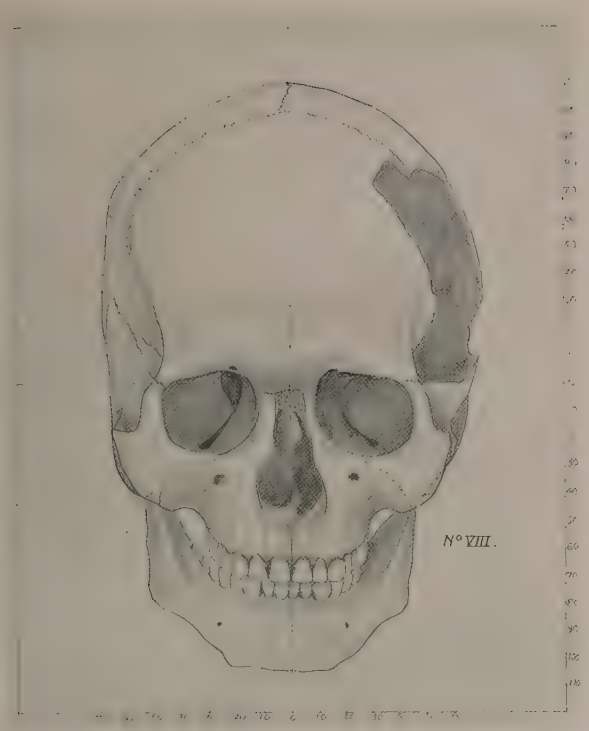
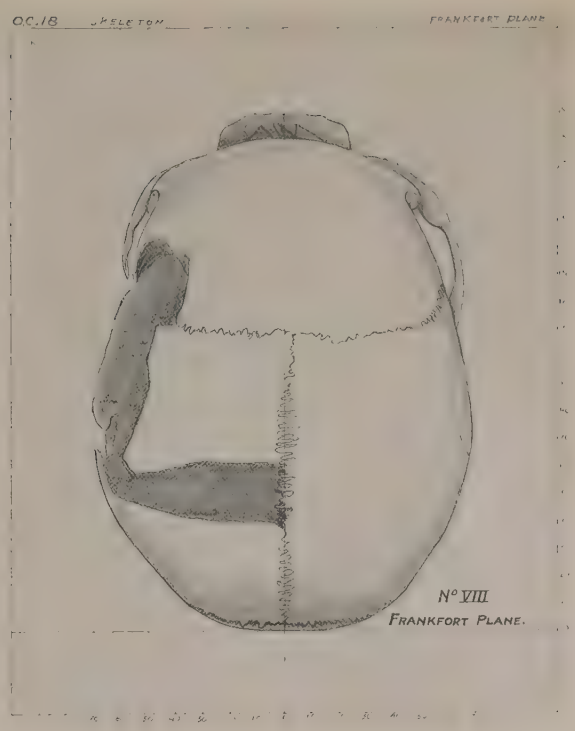
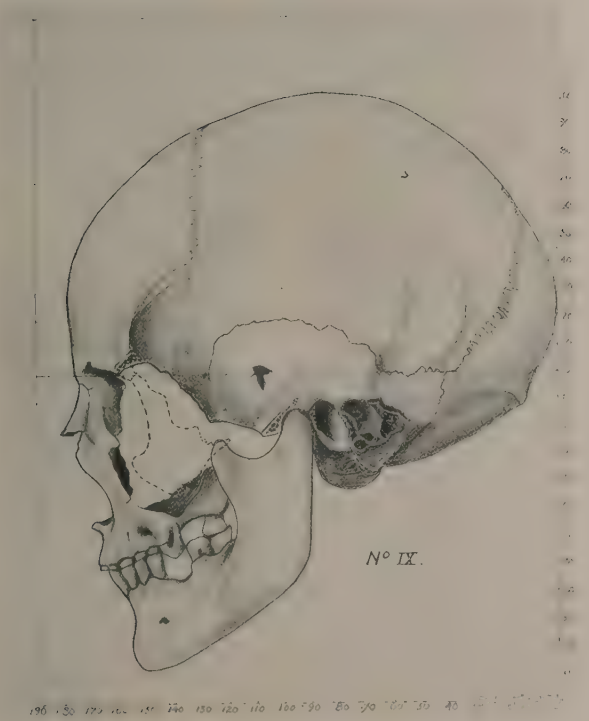
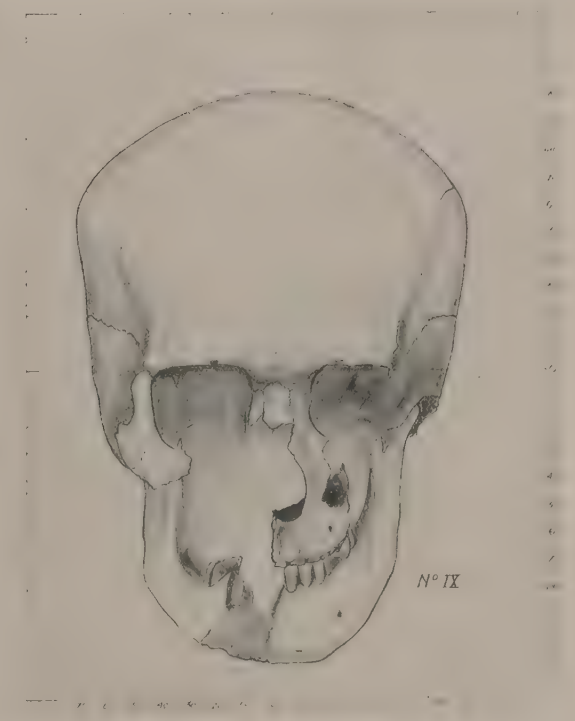
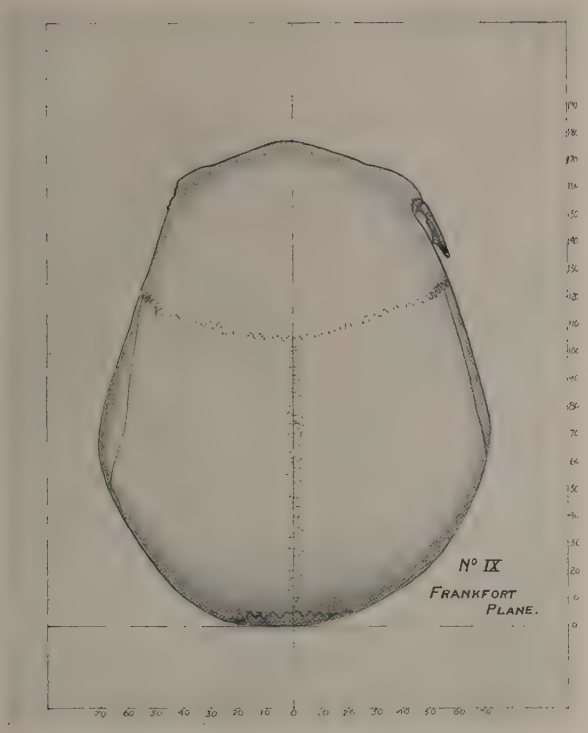


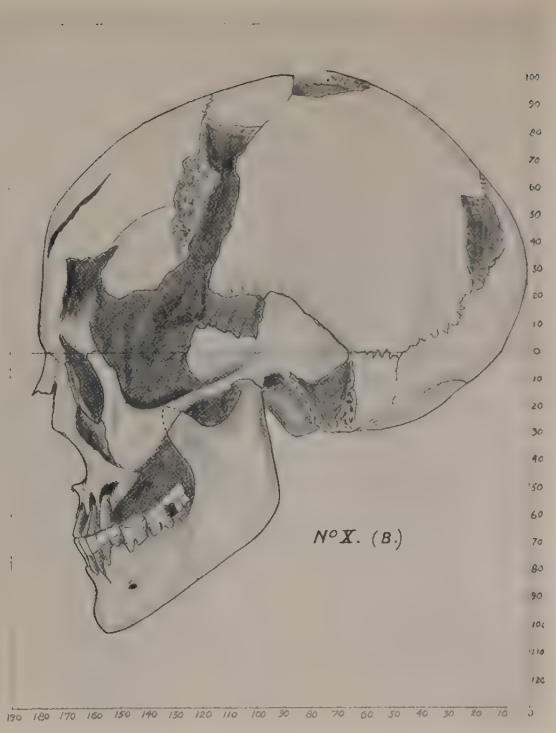


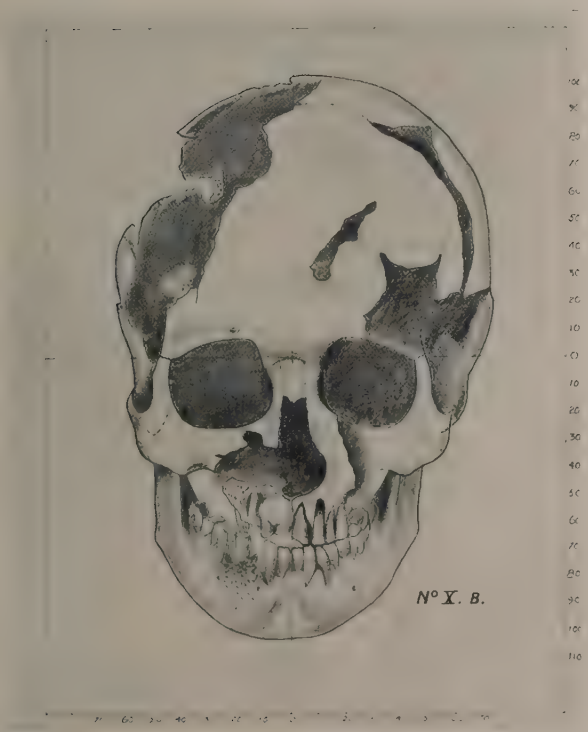


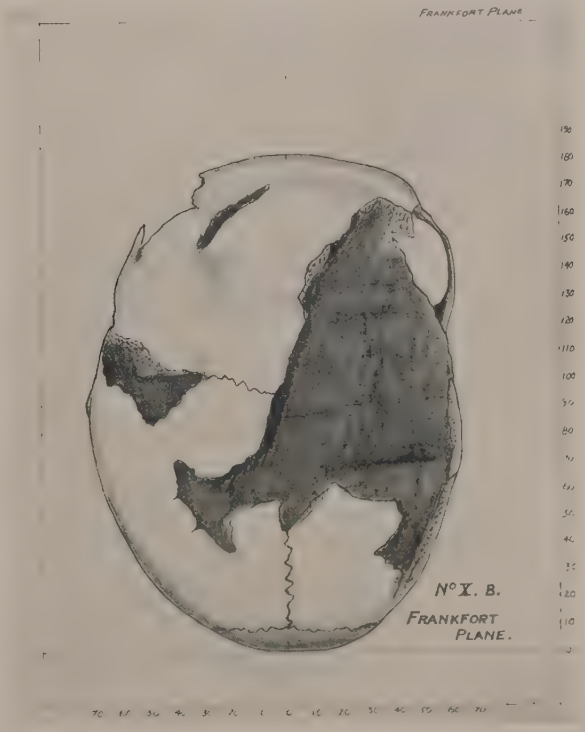


SKULLS FROM THE CEMETERY, AL-'UBAID









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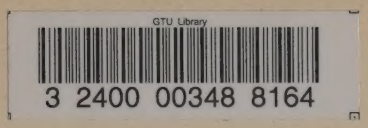

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